TRC
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JONAH INFILL DRILLING PROJECT DRAFT AIR QUALITY TECHNICAL SUPPORT DOCUMENT SUPPLEMENT

Prepared for

Bureau of Land Management
Wyoming State Office
Cheyenne, Wyoming

Pinedale Field Office
Pinedale, Wyoming

and

Wyoming Department of Environmental Quality
Air Quality Division
Cheyenne, Wyoming

Prepared by

TRC Environmental Corporation
Laramie, Wyoming

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TRC Project 35982

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EXECUTIVE SUMMARY

This Draft Air Quality Technical Support Document Supplement was prepared to document additional air quality analyses that have been performed for the Bureau of Land Management (BLM) in support of the proposed Jonah Infill Drilling Project (JIDP). The additional air quality modeling analyses supplement the air quality analyses that were performed and presented for a range of project alternatives in the *Draft Environmental Impact Statement, Jonah Infill Drilling Project, Sublette County, Wyoming* (DEIS) (BLM 2005) and summarized in detail in the *Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement* (AQTSD) (TRC 2004). The additional air quality analyses quantify project-specific and cumulative air quality impacts from additional configurations of the proposed JIDP Preferred Alternative, and quantify project-specific and cumulative impacts from project and regional sources during the early-project-development stage of the JIDP. The additional analyses were deemed necessary by the BLM to 1) evaluate alternative potential mitigation strategies for the Preferred Alternative and 2) identify potential early-project-development stage impacts from JIDP and regional emissions (i.e., drilling) to determine if they would produce impacts greater than those projected for peak production within the JIDPA.

These analyses utilized the CALMET and CALPUFF models to assess impacts from project and non-project cumulative air emissions of PM_{10}, $PM_{2.5}$, NO_x, and SO_2 on air quality and air quality related values (AQRVs) at far-field and mid-field locations and within the JIDPA. Far-field pollutant impacts were assessed at Prevention of Significant Deterioration (PSD) Class I areas (Bridger, Fitzpatrick, Teton, and Washakie Wilderness Areas and Grand Teton and Yellowstone National Parks), and at sensitive PSD Class II areas (Popo Agie Wilderness Area and Wind River Roadless Area). Far-field analyses included impact assessments of concentration, visibility (regional haze), atmospheric deposition, and lake acidity at sensitive lakes within the Wilderness Areas (Black Joe, Deep, Hobbs, Lazy Boy, and Upper Frozen lakes within the Bridger Wilderness Area, Ross Lake in the Fitzpatrick Wilderness Area, and Lower Saddlebag Lake in the Popo Agie Wilderness Area). Mid-field visibility (regional haze) impact analyses were performed for the Wyoming regional community locations of Big Piney, Big Sandy, Boulder, Bronx, Cora, Daniel, Farson, LaBarge, Merna, and Pinedale, although these communities are

classified as PSD Class II areas where no visibility protection exists under local, State, or Federal law. In-field analyses included assessments of concentration impacts within the JIDPA.

Preferred Alternative

Configurations of the Preferred Alternative that are different from those analyzed in the DEIS were modeled to provide a representation of a range of impacts possible under the Preferred Alternative. A low emissions scenario and a high emissions scenario were modeled, as were four potential levels of air pollution mitigation of proposed project sources through emission reductions within the JIDPA (emission reductions of 20%, 40%, 60%, and 80%). The modeling analyses for these additional configurations of the Preferred Alternative follow the methodologies described in the AQTSD, and are directly comparable to the analyses conducted for the DEIS. As in the DEIS modeling, the modeling scenarios were based upon anticipated field characteristics in year 2017, the presumed year of peak emissions. Only project emissions differed in this analysis from those modeled for the DEIS; non-project emissions remained the same.

The findings of the Preferred Alternative analyses are summarized in Tables ES-1 and ES-2. These tables summarize the impacts that could occur for the range of Preferred Alternative scenarios. Table ES-1 provides a summary of the potential concentration and deposition impacts from the Preferred Alternative high emissions case, low emissions case, and the high emissions mitigation case with an 80 percent emission reduction (maximum reduction). Table ES-2 provides a summary of the potential impacts to visibility (regional haze) for these scenarios. Results summaries shown in green (normal text) in these tables indicate that potential impacts are below ambient air quality standards, PSD increments, and BLM-recognized significant threshold values and levels of concern. Results summaries shown in red (**bold text**) indicate that potential impacts are above these levels. A complete disclosure of all modeled impacts from the Preferred Alternative analyses with comparisons to ambient air quality standards, PSD increments, and to BLM and other Federal Land Manager (FLM) significance threshold values and levels of concern is presented in the text of this document.

Table ES-1 Preferred Alternative Air Quality Concentrations and Deposition Impacts Summary

Air Quality Component	Criteria	Source Group & Impact Area	Preferred Alternative: WDR250 High Emissions Case	Preferred Alternative: WDR250 Low Emissions Case	Preferred Alternative: WDR250 80% Mitigation Case
Concentrations	Air Quality Standards	Project: In-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
		Cumulative: In-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
		Project: Far-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
		Cumulative: Far-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
	PSD Class I Increments[1]	Cumulative: Far-Field	PM_{10} < increment NO_2 < increment SO_2 < increment	PM_{10} < increment NO_2 < increment SO_2 < increment	PM_{10} < increment NO_2 < increment SO_2 < increment
	PSD Class II Increments[1]	Cumulative: Far-Field	PM_{10} < increment NO_2 < increment SO_2 < increment	PM_{10} < increment NO_2 < increment SO_2 < increment	PM_{10} < increment NO_2 < increment SO_2 < increment
Atmospheric Deposition	N Deposition	Project: Far-Field	**Bridger WA, N > DAT** **Fitzpatrick WA, N > DAT** **Popo Agie WA, N > DAT** **Wind River RA, N > DAT** Grand Teton NP, N < DAT Teton WA, N < DAT Yellowstone NP, N < DAT Washakie WA, N < DAT	**Bridger WA, N > DAT** Fitzpatrick WA, N < DAT **Popo Agie WA, N > DAT** **Wind River RA, N > DAT** Grand Teton NP, N < DAT Teton WA, N < DAT Yellowstone NP, N < DAT Washakie WA, N < DAT	**Bridger WA, N > DAT** Fitzpatrick WA, N < DAT **Popo Agie WA, N > DAT** Wind River RA, N < DAT Grand Teton NP, N < DAT Teton WA, N < DAT Yellowstone NP, N < DAT Washakie WA, N < DAT
		Total: Far-Field	N < LOC, All Areas	N < LOC, All Areas	N < LOC, All Areas
	S Deposition	Project: Far Field	**Bridger WA, S > DAT** Fitzpatrick WA, S < DAT Popo Agie WA, S < DAT Wind River RA, S < DAT Grand Teton NP, S < DAT Teton WA, S < DAT Yellowstone NP, S < DAT Washakie WA, S < DAT	Bridger WA, S < DAT Fitzpatrick WA, S < DAT Popo Agie WA, S < DAT Wind River RA, S < DAT Grand Teton NP, S < DAT Teton WA, S < DAT Yellowstone NP, S < DAT Washakie WA, S < DAT	Bridger WA, S < DAT Fitzpatrick WA, S < DAT Popo Agie WA, S < DAT Wind River RA, S < DAT Grand Teton NP, S < DAT Teton WA, S < DAT Yellowstone NP, S < DAT Washakie WA, S < DAT
		Total: Far-Field	S < LOC, All Areas	S < LOC, All Areas	S < LOC, All Areas
	Sensitive Lakes	Project: Far-Field	ANC Change < LAC, All Lakes	ANC Change < LAC, All Lakes	ANC Change < LAC, All Lakes
		Cumulative: Far-Field	ANC Change < LAC, All Lakes	ANC Change < LAC, All Lakes	ANC Change < LAC, All Lakes

[1] The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment consumption analysis.

Table ES-2 Preferred Alternative Visibility (Regional Haze) Impacts Summary

Air Quality Component	Impact Area	Source Group	Preferred Alternative: WDR250 High Emissions Case	Preferred Alternative: WDR250 Low Emissions Case	Preferred Alternative: WDR250 80% Mitigation Case
Visibility (Regional Haze)	PSD Class I and Sensitive Class II Areas	Project	**Bridger WA, >1.0-dv 31 days, max dv = 6.44** **Fitzpatrick WA, >1.0-dv 3 days, max dv = 1.54** **Popo Agie WA, >1.0-dv 2 days, max dv = 1.36** **Wind River RA, >1.0-dv 1 days, max dv = 1.22** Grand Teton NP, >1.0-dv 0 days, max dv = 0.66 Teton WA, >1.0-dv 0 days, max dv = 0.28 Yellowstone NP, >1.0-dv 0 days, max dv = 0.31 Washakie WA, >1.0-dv 0 days, max dv = 0.48	**Bridger WA, >1.0-dv 9 days, max dv = 3.26** Fitzpatrick WA, >1.0-dv 0 days, max dv = 0.61 Popo Agie WA, >1.0-dv 0 days, max dv = 0.59 Wind River RA, >1.0-dv 0 days, max dv = 0.50 Grand Teton NP, >1.0-dv 0 days, max dv = 0.31 Teton WA, >1.0-dv 0 days, max dv = 0.14 Yellowstone NP, >1.0-dv 0 days, max dv = 0.15 Washakie WA, >1.0-dv 0 days, max dv = 0.23	**Bridger WA, >1.0-dv 3 days, max dv = 1.66** Fitzpatrick WA, >1.0-dv 0 days, max dv = 0.33 Popo Agie WA, >1.0-dv 0 days, max dv = 0.29 Wind River RA, >1.0-dv 0 days, max dv = 0.26 Grand Teton NP, >1.0-dv 0 days, max dv = 0.14 Teton WA, >1.0-dv 0 days, max dv = 0.06 Yellowstone NP, >1.0-dv 0 days, max dv = 0.06 Washakie WA, >1.0-dv 0 days, max dv = 0.10
		Cumulative	**Bridger WA, >1.0-dv 39 days, max dv = 6.82** **Fitzpatrick WA, >1.0-dv 3 days, max dv = 1.58** **Popo Agie WA, >1.0-dv 6 days, max dv = 1.67** **Wind River RA, >1.0-dv 5 days, max dv = 1.54** Grand Teton NP, >1.0-dv 0 days, max dv = 0.83 Teton WA, >1.0-dv 0 days, max dv = 0.34 Yellowstone NP, >1.0-dv 0 days, max dv = 0.40 Washakie WA, >1.0-dv 0 days, max dv = 0.58	**Bridger WA, >1.0-dv 15 days, max dv = 3.78** Fitzpatrick WA, >1.0-dv 0 days, max dv = 0.85 Popo Agie WA, >1.0-dv 0 days, max dv = 0.97 **Wind River RA, >1.0-dv 2 days, max dv = 1.19** Grand Teton NP, >1.0-dv 0 days, max dv = 0.49 Teton WA, >1.0-dv 0 days, max dv = 0.23 Yellowstone NP, >1.0-dv 0 days, max dv = 0.25 Washakie WA, >1.0-dv 0 days, max dv = 0.33	**Bridger WA, >1.0-dv 6 days, max dv = 2.62** Fitzpatrick WA, >1.0-dv 0 days, max dv = 0.57 Popo Agie WA, >1.0-dv 0 days, max dv = 0.75 Wind River RA, >1.0-dv 0 days, max dv = 0.96 Grand Teton NP, >1.0-dv 0 days, max dv = 0.35 Teton WA, >1.0-dv 0 days, max dv = 0.17 Yellowstone NP, >1.0-dv 0 days, max dv = 0.18 Washakie WA, >1.0-dv 0 days, max dv = 0.23
	Wyoming Regional Communities	Project	**Big Piney, >1.0-dv 18 days, max dv = 3.93** **Big Sandy, >1.0-dv 62 days, max dv = 5.76** **Boulder, >1.0-dv 33 days, max dv = 4.58** **Bronx, >1.0-dv 9 days, max dv = 3.82** **Cora, >1.0-dv 14 days, max dv = 6.70** **Daniel, >1.0-dv 16 days, max dv = 5.50** **Farson, >1.0-dv 13 days, max dv = 4.88** **Labarge, >1.0-dv 6 days, max dv = 2.59** **Merna, >1.0-dv 5 days, max dv = 1.64** **Pinedale, >1.0-dv 21 days, max dv = 8.48**	**Big Piney, >1.0-dv 4 days, max dv = 1.89** **Big Sandy, >1.0-dv 21 days, max dv = 2.92** **Boulder, >1.0-dv 10 days, max dv = 2.30** **Bronx, >1.0-dv 1 days, max dv = 1.60** **Cora, >1.0-dv 1 days, max dv = 3.03** **Daniel, >1.0-dv 1 days, max dv = 2.42** **Farson, >1.0-dv 5 days, max dv = 2.21** **Labarge, >1.0-dv 2 days, max dv = 1.27** Merna, >1.0-dv 0 days, max dv = 0.75 **Pinedale, >1.0-dv 3 days, max dv = 4.07**	Big Piney, >1.0-dv 0 days, max dv = 0.92 **Big Sandy, >1.0-dv 4 days, max dv = 1.45** **Boulder, >1.0-dv 2 days, max dv = 1.10** Bronx, >1.0-dv 0 days, max dv = 0.89 **Cora, >1.0-dv 1 days, max dv = 1.75** **Daniel, >1.0-dv 1 days, max dv = 1.37** **Farson, >1.0-dv 1 days, max dv = 1.19** Labarge, >1.0-dv 0 days, max dv = 0.57 Merna, >1.0-dv 0 days, max dv = 0.35 **Pinedale, >1.0-dv 1 days, max dv = 2.37**
		Cumulative	**Big Piney, >1.0-dv 36 days, max dv = 4.32** **Big Sandy, >1.0-dv 74 days, max dv = 6.18** **Boulder, >1.0-dv 40 days, max dv = 5.58** **Bronx, >1.0-dv 15 days, max dv = 3.88** **Cora, >1.0-dv 17 days, max dv = 6.77** **Daniel, >1.0-dv 23 days, max dv = 5.56** **Farson, >1.0-dv 21 days, max dv = 5.05** **Labarge, >1.0-dv 16 days, max dv = 3.97** **Merna, >1.0-dv 10 days, max dv = 1.93** **Pinedale, >1.0-dv 27 days, max dv = 8.56**	**Big Piney, >1.0-dv 19 days, max dv = 2.57** **Big Sandy, >1.0-dv 32 days, max dv = 3.48** **Boulder, >1.0-dv 20 days, max dv = 3.60** **Bronx, >1.0-dv 1 days, max dv = 1.68** **Cora, >1.0-dv 7 days, max dv = 3.13** **Daniel, >1.0-dv 11 days, max dv = 2.52** **Farson, >1.0-dv 11 days, max dv = 2.68** **Labarge, >1.0-dv 11 days, max dv = 2.85** **Merna, >1.0-dv 4 days, max dv = 1.11** **Pinedale, >1.0-dv 8 days, max dv = 4.18**	**Big Piney, >1.0-dv 13 days, max dv = 2.28** **Big Sandy, >1.0-dv 12 days, max dv = 2.13** **Boulder, >1.0-dv 9 days, max dv = 3.09** Bronx, >1.0-dv 0 days, max dv = 0.97 **Cora, >1.0-dv 2 days, max dv = 1.86** **Daniel, >1.0-dv 2 days, max dv = 1.47** **Farson, >1.0-dv 10 days, max dv = 1.87** **Labarge, >1.0-dv 6 days, max dv = 2.30** **Merna, >1.0-dv 1 days, max dv = 1.03** **Pinedale, >1.0-dv 6 days, max dv = 2.50**

Direct project and cumulative impacts from all modeled Preferred Alternative scenarios are less than applicable ambient air quality standards and PSD increments at all PSD Class I and sensitive Class II areas. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment consumption analysis, which may be completed as necessary by WDEQ-AQD.

Direct project and cumulative impacts from all modeled Preferred Alternative scenarios are less than applicable ambient air quality standards with in JIDPA.

Direct project and cumulative impacts from all Preferred Alternative scenarios would result in no significant acidification at any acid-sensitive lake analyzed.

Direct project sulfur deposition impacts from the Preferred Alternative high emissions scenario were greater than the thresholds of concern at the Bridger Wilderness Area and less than the thresholds at all other sensitive areas. Direct project sulfur deposition impacts from all other Preferred Alternative scenarios were less than the thresholds. Direct project nitrogen deposition impacts from all Preferred Alternative scenarios were greater than the thresholds of concern at the Bridger and Popo Agie Wilderness Areas. Direct project nitrogen deposition impacts were greater than the thresholds of concern at the Wind River Roadless Area for the "low emissions" scenario, and at the Fitzpatrick Wilderness Area and Wind River Roadless Area for the "high emissions" scenario. The exceedences of these thresholds trigger a management concern but are not necessarily indicative of an adverse impact (NPS 2004).

Direct project and cumulative total deposition impacts from all Preferred Alternative scenarios were less than deposition levels of concern.

Direct project visibility (regional haze) impacts was greater than the "just noticeable visibility change" (1.0-dv) threshold at the Bridger Wilderness Area for all analyzed scenarios, (ranging from 3 days per year up to 31 days per year), and under the high emissions scenario direct project visibility impacts were greater than the 1.0-dv threshold at the Fitzpatrick Wilderness Area

(maximum of 3 days), Popo Agie Wilderness Area (maximum of 2 days) and Wind River Roadless Area (maximum of 1 day).

Cumulative visibility impacts were greater than the 1.0-dv threshold at the Bridger Wilderness Area for all analyzed scenarios, (ranging from 6 days per year up to 39 days per year), and under the high emissions scenario impacts were greater than the 1.0-dv thresholds at the Fitzpatrick Wilderness Area (maximum of 3 days), Popo Agie Wilderness Area (maximum of 6 days) and Wind River Roadless Area (maximum of 5 days).

Direct project visibility impacts were greater than the 1.0-dv threshold at most of the analyzed mid-field locations, with maximum potential impacts ranging from 4 days per year at Big Sandy under the lowest emissions scenario up to 62 days per year under the "high emissions" scenario.

Cumulative visibility impacts were greater than the 1.0-dv threshold at most of the analyzed mid-field locations, with maximum potential impacts ranging from 12 days per year at Big Sandy under the lowest emissions scenario up to 74 days per year under the "high emissions" scenario.

Early-Project-Development Stage

An analysis of JIDP early-project-development stage air quality conditions in the vicinity of the JIDPA was also performed. What was modeled and presented for the Preferred Alternative considered the "most likely case" maximum emissions scenario for the JIDP. However, when quantifying maximum cumulative impacts regionally, it is possible that peak regional impacts could occur prior to JIDP maximum emissions as a result of the development of other natural gas projects in the region, specifically the Pinedale Anticline Project (PAP), South Piney Project (SPP), Riley Ridge Project (RRP), and Jack Morrow Hills Project (JMHP). The BLM performed this analysis because 1) regional impacts appear to be greatest during the early stages of JIDP development due to accelerated development paces in these nearby project areas, and 2) the emissions from increased drilling near Pinedale had not been adequately characterized in the DEIS. The Record of Decision (ROD) for the Pinedale Anticline EIS (BLM 1999) stated that if

emissions of nitrogen oxides (NOx) from the Jonah and Pinedale Anticline gas fields reached 693.5 tons per year, the BLM would perform further air quality analyses. The analysis for the Questar Year-round drilling EA (BLM 2004), published after completion of the DEIS analysis, indicated that NOx emissions had substantially exceeded that level, due mainly to emissions from drill rigs. Drill rig emissions were higher than assumed in the PAPA EIS because:

- there were more drill rigs operating than estimated;
- conditions required drill rig engines to have larger horsepower than estimated; and
- directional drilling required drill rigs to operate for a longer period of time per well than estimated.

Results for the early-project-development stage modeling analyses are summarized in Tables ES-3 and ES-4. Table ES-3 provides a summary of the potential concentration and deposition impacts for both direct project and cumulative scenarios and Table ES-4 provides a summary of the potential impacts to visibility (regional haze) for these scenarios. Results summaries shown in green (normal text) in these tables indicate that potential impacts are below ambient air quality standards, PSD increments, and BLM-recognized significant threshold values and levels of concern. Results summaries shown in red (**bold text**) indicate that potential impacts are above these levels. These modeling analyses are not directly comparable to the results presented earlier or in the DEIS due to differences in the regional emissions inventories and the expanded compression estimates included in this analysis. A complete disclosure of all modeled impacts from the early-project-development stage modeling analyses with comparisons to ambient air quality standards, PSD increments, and to BLM and other FLM significance threshold values and levels of concern is presented in the text of this document.

Direct project and cumulative impacts from early-project-development stage source emissions would be less than the applicable ambient air quality standards and PSD increments at all PSD Class I and sensitive Class II areas. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment consumption analysis, which may be completed as necessary by WDEQ-AQD.

Direct project and cumulative impacts from early-project-development stage source emissions would be less than the applicable ambient air quality standards with in JIDPA.

Direct project and cumulative impacts from early-project-development stage source emissions would not result in significant acidification at any acid-sensitive lake analyzed.

Direct project sulfur deposition impacts from early-project-development stage source emissions would be below thresholds of concern at all analyzed sensitive areas.

Direct project nitrogen deposition impacts from early-project-development stage source emissions were greater than the thresholds of concern at the Bridger and Popo Agie Wilderness Areas. The exceedences of these thresholds trigger a management concern but are not necessarily indicative of an adverse impact (NPS 2004).

Table ES-3 Early-Project-Development-Stage Air Quality Concentrations and Deposition Impacts

Air Quality Component	Criteria	Source Group & Impact Area	Early-Project-Development Stage: WDR250
Concentrations	Air Quality Standards	Project: In-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
		Cumulative: In-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
		Project: Far-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
		Cumulative: Far-Field	PM_{10} < NAAQS&WAAQS $PM_{2.5}$ < NAAQS&WAAQS NO_2 < NAAQS&WAAQS SO_2 < NAAQS&WAAQS
	PSD Class I Increments[1]	Cumulative: Far-Field	PM_{10} < increment NO_2 < increment SO_2 < increment
	PSD Class II Increments[1]	Cumulative: Far-Field	PM_{10} < increment NO_2 < increment SO_2 < increment
Atmospheric Deposition	N Deposition	Project: Far-Field	**Bridger WA, N > DAT** Fitzpatrick WA, N < DAT **Popo Agie WA, N > DAT** Wind River RA, N < DAT Grand Teton NP, N < DAT Teton WA, N < DAT Yellowstone NP, N < DAT Washakie WA, N < DAT
		Total: Far-Field	N < LOC, All Areas
	S Deposition	Project: Far-Field	S < DAT, All Areas
		Total: Far-Field	S < LOC, All Areas
	Sensitive Lakes	Project: Far-Field	ANC Change < LAC, All Lakes
		Cumulative: Far-Field	ANC Change < LAC, All Lakes

[1] The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment consumption analysis.

Table ES-4 Early-Project-Development-Stage Visibility (Regional Haze) Impacts

Air Quality Component	Impact Area	Source Group	Early-Project-Development Stage: WDR250
Visibility (Regional Haze)	PSD Class I and Sensitive Class II Areas	Project	**Bridger WA, >1.0-dv 9 days, max dv = 2.42** Fitzpatrick WA, >1.0dv 0 days, max dv = 0.95 **Popo Agie WA, >1.0-dv 2 days, max dv = 1.06** **Wind River RA, >1.0-dv 1 days, max dv = 1.01** Grand Teton NP, >1.0-dv 0 days, max dv = 0.67 Teton WA, >1.0-dv 0 days, max dv = 0.37 Yellowstone NP, >1.0-dv 0 days, max dv = 0.32 Washakie WA, >1.0-dv 0 days, max dv = 0.43
		Cumulative	**Bridger WA, >1.0-dv 61 days, max dv = 6.57** **Fitzpatrick WA, >1.0-dv 11 days, max dv = 3.37** **Popo Agie WA, >1.0-dv 23 days, max dv = 3.35** **Wind River RA, >1.0-dv 15 days, max dv = 3.39** **Grand Teton NP, >1.0-dv 8 days, max dv = 2.63** **Teton WA, >1.0-dv 4 days, max dv = 1.33** **Yellowstone NP, >1.0-dv 3 days, max dv = 1.22** **Washakie WA, >1.0-dv 2 days, max dv = 1.70**
	Wyoming Regional Communities	Project	**Big Piney, >1.0-dv 24 days, max dv = 6.62** **Big Sandy, >1.0-dv 24 days, max dv = 3.66** **Boulder, >1.0-dv 18 days, max dv = 3.37** **Bronx, >1.0-dv 8 days, max dv = 1.79** **Cora, >1.0-dv 11 days, max dv = 2.17** **Daniel, >1.0-dv 14 days, max dv = 2.93** **Farson, >1.0-dv 33 days, max dv = 5.18** **Labarge, >1.0-dv 11 days, max dv = 5.73** **Merna, >1.0-dv 7 days, max dv = 2.46** **Pinedale, >1.0-dv 14 days, max dv = 2.94**
		Cumulative	**Big Piney, >1.0-dv 85 days, max dv = 14.43** **Big Sandy, >1.0-dv 108 days, max dv = 8.42** **Boulder, >1.0-dv 131 days, max dv = 10.59** **Bronx, >1.0-dv 63 days, max dv = 9.60** **Cora, >1.0-dv 73 days, max dv = 9.95** **Daniel, >1.0-dv 88 days, max dv = 12.68** **Farson, >1.0-dv 77 days, max dv = 10.85** **Labarge, >1.0-dv 39 days, max dv = 11.12** **Merna, >1.0-dv 33 days, max dv = 6.25** **Pinedale, >1.0-dv 113 days, max dv = 10.32**

Total deposition impacts from early-project-development stage source emissions and cumulative source emissions were less than deposition levels of concern.

Direct project visibility (regional haze) impacts from early-project-development stage source emissions were greater than the "just noticeable visibility change" (1.0-dv) threshold at the Bridger Wilderness Area (up to 9 days per year), Popo Agie Wilderness Area (maximum of 2 days) and at the Wind River Roadless Area (maximum of 1 day).

Cumulative visibility impacts from early-project-development stage sources and cumulative sources were greater than the 1.0-dv threshold at all of the analyzed areas with maximum impacts occurring at the Bridger Wilderness Area, (up to 61 days per year).

Direct project visibility impacts from early-project-development stage sources were greater than the 1.0-dv threshold at all of the analyzed mid-field locations, with maximum potential impacts occurring at Farson, where up to 33 days per year of impairment could occur.

Cumulative visibility impacts from early-project-development stage and regional sources were greater than the 1.0-dv threshold at all of the analyzed mid-field locations, with maximum potential impacts occurring at Boulder, where up to 131 days per year of impairment could occur.

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ACRONYMS AND ABBREVIATIONS

ANC	acid neutralizing capacity
AQRV	air quality related value
AQTSD	air quality technical support document
BLM	U.S. Department of Interior, Bureau of Land Management
CDPHE/APCD	Colorado Department of Public Health and Environment/Air Pollution Control Division
DAT	data analysis threshold (deposition)
DEIS	draft environmental impact statement
dv	deciview
EPA	U.S. Environmental Protection Agency
FEIS	final environmental impact statement
FLAG	Federal Land Manager's Air Quality Related Values Workgroup
FLM	Federal Land Manager
IDEQ	Idaho Division of Environmental Quality
JMHP	Jack Morrow Hills Project
JIDP	Jonah Infill Drilling Project
JIDPA	Jonah Infill Drilling Project Area
LAC	level of acceptable change (ANC)
LOC	level of concern (deposition)
LOP	life-of-project
NAAQS	national ambient air quality standard
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
NP	National Park
NPS	National Park Service
PAP	Pinedale Anticline Project
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PSD	Prevention of Significant Deterioration
RA	road-less area
RFFA	reasonably foreseeable future actions
RFD	reasonably foreseeable development
RRP	Riley Ridge Project
SO_2	sulfur dioxide
SPP	South Piney Project
TRC	TRC Environmental Corporation
USDA Forest Service	U.S. Department of Agriculture, Forest Service
UDEQ-AQD	Utah Department of Environmental Quality-Air Quality Division

ACRONYMS AND ABBREVIATIONS (continued)

VOC	volatile organic compound
WA	wilderness area
WAAQS	Wyoming ambient air quality standard
WDEQ-AQD	Wyoming Department of Environmental Quality, Air Quality Division
WDR	well development rate
WOGCC	Wyoming Oil and Gas Conservation Commission
WRAP	Western Regional Air Partnership

1.0 INTRODUCTION

TRC Environmental Corporation (TRC) has prepared this Air Quality Technical Support Document (AQTSD) supplement to summarize additional air quality analyses that have been performed in support of the proposed Jonah Infill Drilling project (JIDP). These air quality modeling analyses have been requested by the Bureau of Land Management (BLM) to supplement the air quality analyses that were performed and presented for a range of project alternatives in the *Draft Environmental Impact Statement, Jonah Infill Drilling Project, Sublette County, Wyoming* (DEIS) (BLM 2005) and provided in detail in the *Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement* (AQTSD) (TRC 2004). The additional air quality analyses quantify project-specific and cumulative air quality impacts from additional configurations of the proposed JIDP Preferred Alternative which were not analyzed as part of the DEIS, and quantify project-specific and cumulative impacts from potential emissions which reflect early-project-development stage conditions existing in the region surrounding the Jonah Infill Drilling Project area (JIDPA). The additional analyses were deemed necessary by the BLM to evaluate alternative potential mitigation strategies for the Preferred Alternative in an effort to identify possible project development requirements to reduce adverse air quality impacts, and to identify maximum early-project-development stage regional emissions (i.e., drilling) which could reveal that regional impacts are more severe at this stage due to impacts from the development of other regional projects, which at present have not been adequately evaluated.

The methodologies used for these analyses are described in the June 2005, *Air Quality Impact Assessment Protocol, Jonah Infill Drilling Project Draft Environmental Impact Statement Impact Analysis Supplement* (provided in Appendix A), which was developed by TRC with input from the BLM, Wyoming Department of Environmental Quality Air Quality Division (WDEQ-AQD), U.S. Environmental Protection Agency (EPA), National Park Service (NPS), and U.S. Department of Agriculture Forest Service (USDA Forest Service).

These analyses involve the use of the CALMET and CALPUFF models to assess impacts from project and non-project cumulative air emissions on air quality and air quality related values (AQRVs) at far-field and mid-field locations within the JIDPA cumulative study area, shown in Figure 1. Cumulative analyses include project impacts plus impacts from permitted sources, reasonably foreseeable development (RFD), and reasonably foreseeable future actions (RFFA) which were projected to exist after a specified date and would be located within a defined regional area (see TRC 2004 for further detail). All air emissions sources within the study domain were not explicitly modeled; some sources were considered to already be included ambient air background values. Far-field pollutant impacts were assessed at the Prevention of Significant Deterioration (PSD) Class I areas (Bridger, Fitzpatrick, Teton, and Washakie Wilderness Areas and Grand Teton and Yellowstone National Parks), and at the sensitive Class II Popo Agie Wilderness Area and Wind River Roadless Area. Far-field analyses include impact assessments of concentration, visibility, acid deposition, and lake acidity (at sensitive lakes within the Wilderness Areas). Mid-field visibility impact analyses were performed at the Wyoming regional community locations of Big Piney, Big Sandy, Boulder, Bronx, Cora, Daniel, Farson, LaBarge, Merna, and Pinedale.

The Preferred Alternative modeling analyses presented in this document are directly comparable to the analyses conducted for the DEIS. Unlike the Preferred Alternative modeling analyses, early-project-development stage modeling is not directly comparable to either the analyses conducted for the DEIS or the Preferred Alternative modeling analyses contained herein.

The remainder of this AQTSD supplement summarizes the analysis of the Preferred Alternative additional configurations (Section 2.0) and the analysis of early-project-development stage conditions in the JIDPA region (Section 3.0).

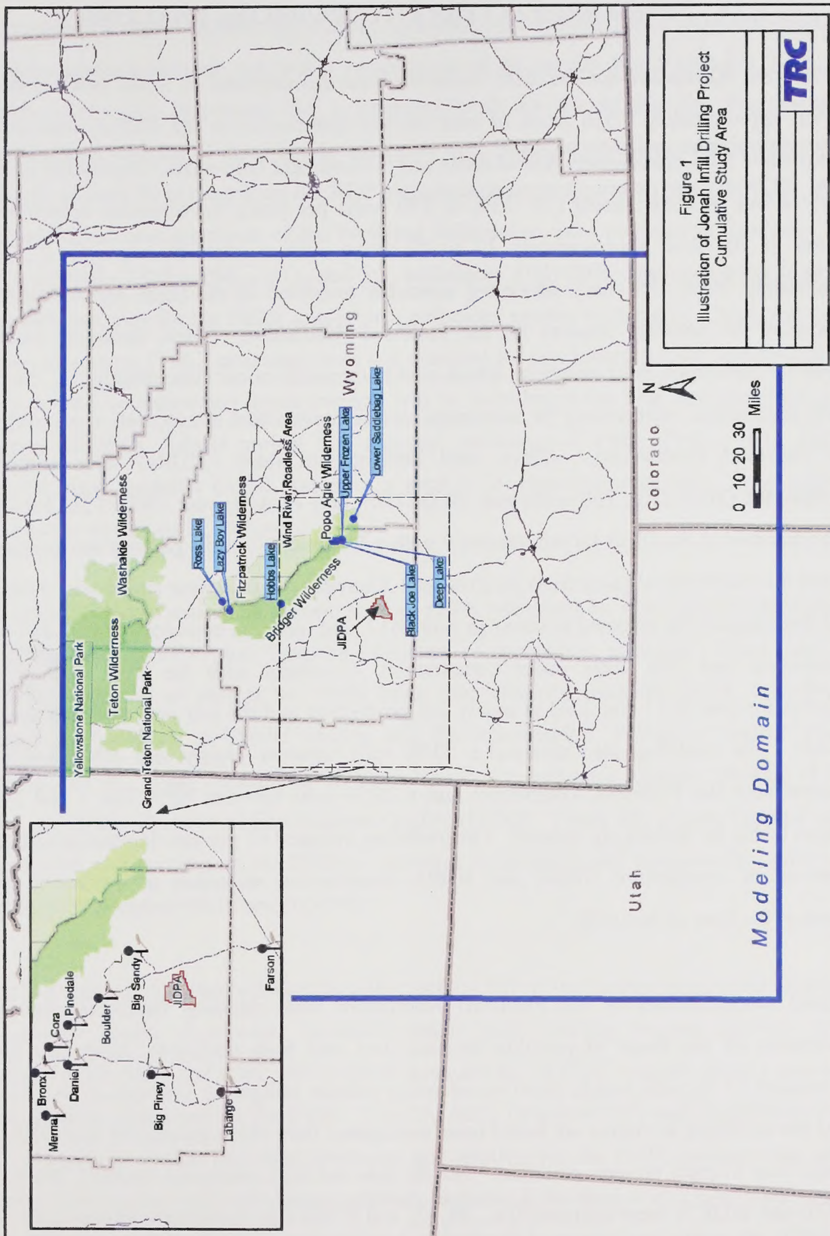


Figure 1
Illustration of Jonah Infill Drilling Project
Cumulative Study Area
TRC
Modeling Domain
Wyoming
Colorado
Utah
0 10 20 30 Miles
N
Yellowstone National Park
Teton Wilderness
Grand Teton National Park
Washakie Wilderness
Ross Lake
Lazy Boy Lake
Fitzpatrick Wilderness
Hobbs Lake
Wind River Roadless Area
Bridger Wilderness
Popo Agie Wilderness
Upper Frozen Lake
Lower Saddlebag Lake
Black Joe Lake
Deep Lake
JIDPA
Merna
Bronx
Daniel
Cora
Pinedale
Boulder
Big Sandy
Big Piney
Labarge
Farson

2.0 PREFERRED ALTERNATIVE MODELING ANALYSES

The Preferred Alternative for the JIDP consists of the development of 3,100 new natural gas wells on approximately 8,316 acres of new surface disturbance in the JIDPA, and assumes approximately 50% directionally drilled wells and 50% straight hole wells. Depending upon the authorized rate of development (75, 150, or 250 wells per year), development operations are expected to last from approximately 12 to 42 years, with a total life-of-project (LOP) of approximately 76 to 105 years. Modeling scenarios presented in the DEIS for Alternative F approximate the potential impacts for the Preferred Alternative. These modeling scenarios assumed the maximum field emissions which could potentially occur concurrently (i.e., the final year of construction representing the maximum annual construction activity rate combined with nearly full-field production). Three well development rates (WDRs) were analyzed--250 wells/year (WDR250), 150 wells/year (WDR150), and 75 wells/year (WDR75). Modeling results presented in the DEIS for Alternative F with a WDR of 250 wells per year are assumed to represent the maximum impacts from the Preferred Alternative at peak year emissions. Peak year project emissions were assumed to occur in year 2017, and included emissions from 2,850 wells in production and 250 wells under construction, consistent with the field configuration anticipated for year 2017 (the field at nearly full production and the last year of construction in the field). The modeling also assumed a 50/50 split between straight and directional wells (consistent with the Preferred Alternative) and a 50/50 split between EPA Tier 1 and Tier 2 emissions levels for drilling rig engines. The modeling included 80 percent flareless completions (20 percent of completions flared) and JIDPA compression emissions at maximum levels projected at the time of the DEIS.

Additional configurations of the Preferred Alternative were modeled herein to provide a representation of the range of possible impacts (low and high emissions scenarios), and a representation of impacts which could occur using various mitigation methods in the JIDPA. Each of the modeling scenarios are based upon anticipated field characteristics in year 2017, the presumed year of peak project emissions. For the low and high emissions scenario, WDR250, WDR150 and WDR75 were analyzed (i.e., 20, 12, and 6 drill rigs operating continuously). The

low emissions scenario assumes all drilling rig engines are at EPA Tier 2 emissions levels, and the high emissions scenario assumes a combination of 80 percent Tier 0 (AP-42) (EPA 1995) emission levels and 20 percent Tier 1 emission levels for the drilling rigs. Four mitigation scenarios were analyzed. The mitigation scenarios were based on emission reduction percentages of 20, 40, 60, and 80 percent from the JIDP high emissions configuration at a 250WDR. A total of 10 additional configurations of the Preferred Alternative were modeled to determine direct project impacts of PM_{10}, $PM_{2.5}$, NO_x, and SO_2 emissions. Only JIDP emissions differ from those previously modeled for the DEIS; non-project emissions remain unchanged. (Note that volatile organic compound [VOC] emissions were not modeled for this interim report, and revised VOC emissions and corresponding ozone impacts will be included in the final environmental impact statement [FEIS].) Direct project and regional emissions of PM_{10}, $PM_{2.5}$, NO_x, and SO_2 emissions were modeled for all scenarios, a total of 20 modeling scenarios. These additional scenarios are described in Sections 2.1 – 2.3.

Non-project regional emissions include sources newly permitted by state agencies through June 30, 2003, RFD, RFFA, and Operator-projected compressions estimates. These data were originally compiled as part of the DEIS using data obtained from the BLM, WDEQ-AQD, Colorado Department of Public Health and Environment/Air Pollution Control Division (CDPHE/APCD), Utah Department of Environmental Quality-Air Quality Division (UDEQ-AQD), and Idaho Division of Environment Quality (IDEQ). These non-project regional sources are modeled as they were in the DEIS to maintain consistency and comparability with results reported in the original DEIS and AQTSD.

Modeling analyses for these additional configurations follow the methodologies described in the *Air Quality Impact Assessment Protocol, Jonah Infill Drilling Project, Sublette County, Wyoming* (2003 Protocol) (TRC 2003) which preceded the AQTSD, and are directly comparable to the analyses conducted for the DEIS. The CALMET (Version 5.53) and CALPUFF (Version 5.711) modeling system that was developed and applied for the DEIS analyses was used to estimate both project and cumulative pollutant impacts at far-field PSD Class I and sensitive Class II areas, at mid-field Wyoming regional community locations, and within the JIDPA. All

model methodologies, switch settings, source parameters, and model receptors are identical to analyses performed for the DEIS. Model results for the Preferred Alternative scenarios are summarized in Section 2.4.

2.1 LOW EMISSIONS CONFIGURATION

Project sources for the low emissions analysis included all drilling rig engine emissions at Tier 2 emission levels. WDRs of 250, 150, and 75 were analyzed, with 20, 12, and 6 drill rigs operating continuously, respectively. A 50/50 split between straight and directionally drilled wells was assumed. All other project sources were identical to Alternative F in the DEIS. Drill rig engine sizes and source parameters are also consistent with assumptions in the DEIS. Tier 2 drilling rig emissions calculations are shown in Appendix B. A summary of all project emissions modeled is provided in Table B.1.1 of Appendix B. Modeling was performed for both project-specific and cumulative emissions scenarios.

2.2 HIGH EMISSIONS CONFIGURATION

Project sources for the high emissions analysis included 80% of drilling rig engine emissions at Tier 0 emission levels (AP-42 levels) (EPA 1995) and 20% of engine emissions at Tier 1 emission levels. WDR250, WDR150, and WDR75 were analyzed, with 20, 12, and 6 drill rigs operating continuously, respectively. A 50/50 split between straight and directionally drilled wells was assumed. All other project sources were identical to Alternative F in the DEIS. Drill rig engine sizes and source parameters are also consistent with assumptions in the DEIS. Tier 0 and Tier 1 drilling rig emissions calculations are shown in Appendix B. A summary of all project emissions modeled is provided in Table B.1.1 of Appendix B. Modeling was performed for both project-specific and cumulative emissions scenarios.

2.3 MITIGATION ANALYSES

Because the actual mitigation methods to be utilized in the JIDPA are not yet known, four general mitigation scenarios were analyzed, each assuming a certain percentage of emissions control would occur in the field. The scenarios were based on the JIDP Preferred Alternative

high emissions configuration at a 250WDR with a 50/50 split between straight and directionally drilled wells. This configuration was analyzed with emissions at 1) 80% of Preferred Alternative high emissions, 2) 60% of Preferred Alternative high emissions, 3) 40% of Preferred Alternative high emissions, and 4) 20% of Preferred Alternative high emissions. These analyses are sensitivity modeling runs that can be used to identify minimum impacts levels from project-specific source emissions. Drill rig engine sizes and source parameters are consistent with assumptions presented in the DEIS. A summary of project emissions modeled for each mitigation scenario is provided in Table B.1 of Appendix B. Modeling was performed for both project-specific and cumulative emissions scenarios.

2.4 MODEL RESULTS

CALPUFF modeling was performed to compute direct project impacts for each of the analyzed scenarios and for estimating cumulative impacts from potential project and regional sources. Regional emission inventories of existing state-permitted RFD and RFFA sources were modeled in combination with project sources to provide cumulative impact estimates for each scenario. A total of 20 modeling scenarios were evaluated in this analysis. These model results are directly comparable to all other alternatives analyzed and presented in the DEIS. A list of these scenarios is summarized in Table 2.1.

For each far-field sensitive area, CALPUFF-modeled concentration impacts were post-processed with POSTUTIL and CALPOST to derive: 1) concentrations for comparison to Wyoming and National ambient air quality standards (WAAQS and NAAQS), PSD Class I significance thresholds, and PSD Class I and II Increments; 2) deposition rates for comparison to sulfur (S) and nitrogen (N) deposition levels of concern and to calculate changes to acid neutralizing capacity (ANC) at sensitive lakes; and 3) light extinction changes for comparison to visibility impact thresholds. For the mid-field analyses, CALPOST concentrations were post-processed to

Table 2.1 **Modeling Scenarios Analyzed for Preferred Alternative and Regional Emissions, Jonah Infill Drilling Project, Sublette County, Wyoming, 2005.**

Modeling Scenario	Source Impacts Evaluated	Scenario Description	Number of New Wells in Production	Number of Wells under Construction
1	Direct Project	Low Emissions – Tier 2 Drill Rigs	2,850	250/year
2	Direct Project	Low Emissions – Tier 2 Drill Rigs	2,950	150/year
3	Direct Project	Low Emissions – Tier 2 Drill Rigs	3,025	75/year
4	Direct Project	High Emissions – 80% Tier 0, 20% Tier 1 Drill Rigs	2,850	250/year
5	Direct Project	High Emissions – 80% Tier 0, 20% Tier 1 Drill Rigs	2,950	150/year
6	Direct Project	High Emissions – 80% Tier 0, 20% Tier 1 Drill Rigs	3,025	75/year
7	Direct Project	Mitigation Analysis (20 % Emissions Reduction)	2,850	250/year
8	Direct Project	Mitigation Analysis (40 % Emissions Reduction)	2,850	250/year
9	Direct Project	Mitigation Analysis (60 % Emissions Reduction)	2,850	250/year
10	Direct Project	Mitigation Analysis (80 % Emissions Reduction)	2,850	250/year
11	Cumulative[1]	Low Emissions – Tier 2 Drill Rigs	2,850	250/year
12	Cumulative[1]	Low Emissions – Tier 2 Drill Rigs	2,950	150/year
13	Cumulative[1]	Low Emissions – Tier 2 Drill Rigs	3,025	75/year
14	Cumulative[1]	High Emissions – 80% Tier 0, 20% Tier 1 Drill Rigs	2,850	250/year
15	Cumulative[1]	High Emissions – 80% Tier 0, 20% Tier 1 Drill Rigs	2,950	150/year
16	Cumulative[1]	High Emissions – 80% Tier 0, 20% Tier 1 Drill Rigs	3,025	75/year
17	Cumulative[1]	Mitigation Analysis (20 % Emissions Reduction)	2,850	250/year
18	Cumulative[1]	Mitigation Analysis (40 % Emissions Reduction)	2,850	250/year
19	Cumulative[1]	Mitigation Analysis (60 % Emissions Reduction)	2,850	250/year
20	Cumulative[1]	Mitigation Analysis (80 % Emissions Reduction)	2,850	250/year

1. Includes regional source emissions inventory.

estimate light extinction changes at regional communities for comparison to the visibility impact thresholds. For in-field locations, CALPUFF concentrations were post-processed to compute maximum concentration impacts for comparison to WAAQS and NAAQS. All post-processing methods and background data assumptions are consistent with the analyses presented in the DEIS.

2.4.1 Concentration

The CALPOST and POSTUTIL post-processors were used to summarize concentration impacts of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ at PSD Class I and sensitive PSD Class II areas and at in-field locations. Predicted impacts are compared to applicable ambient air quality standards, PSD Class I and Class II Increments, and significance levels as shown in Table 2.2.

Table 2.2 NAAQS, WAAQS, PSD Class I and Class II Increments, and PSD Class I and Class II Significance Levels for Comparison to Far-field Analysis Results ($\mu g/m^3$).

Pollutant/Averaging Time	NAAQS	WAAQS	PSD Class I Increment	PSD Class II Increment	PSD Class I Significance Level[1]	PSD Class II Significance Level
NO_2						
Annual[2]	100	100	2.5	25	0.1	1.0
SO_2						
3-hour[3]	1,300	1,300	25	512	1.0	25.0
24-hour[3]	365	260	5	91	0.2	5.0
Annual[2]	80	60	2	20	0.1	1.0
PM_{10}						
24-hour[3]	150	150	8	30	0.3	5.0
Annual[2]	50	50	4	17	0.2	1.0
$PM_{2.5}$						
24-hour[4]	65	65	--	--	--	--
Annual [4]	15	15	--	--	--	--

1 Proposed Class I significance levels from 61 *Federal Register* 142, pg. 38292, July 23, 1996.
2 Annual arithmetic mean.
3 No more than one exceedance per year is allowed.
4 Standard not yet enforced in Wyoming; -- = no current or proposed value.

The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment consumption analysis, which may be completed as necessary by WDEQ-AQD. The approach to this PSD screening analysis is consistent with the 2003 Protocol.

PM_{10} concentrations were computed by adding predicted CALPUFF concentrations of PM_{10} (fraction of PM greater than $PM_{2.5}$), $PM_{2.5}$, SO_4, and NO_3. $PM_{2.5}$ concentrations were calculated as the sum of modeled $PM_{2.5}$, SO_4, and NO_3 concentrations. Consistent with the DEIS analyses for post-processing the PM_{10} impacts at all far-field receptor locations, project traffic emissions of PM_{10} (production and construction) were not included in the total estimated impacts, only the $PM_{2.5}$ impacts were considered. This assumption was based on supporting documentation from the Western Regional Air Partnership (WRAP) analyses of mechanically generated fugitive dust emissions that suggest that particles larger than $PM_{2.5}$ tend to deposit out rapidly near the emissions source and do not transport over long distances (Countess et al. 2001). However, the total PM_{10} impacts from traffic emissions were included in all in-field concentration estimates.

<u>Far-field Results</u>

The maximum predicted concentrations of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ at each of the analyzed PSD Class I and sensitive Class II areas, for each of the 20 modeled direct project and cumulative source scenarios, are provided in Appendix C. Predicted direct impacts are compared to applicable PSD Class I and Class II Increments and significance levels, and then added to representative background pollutant concentrations (Table 2.3), the total concentration is compared to applicable NAAQS and WAAQS. Cumulative impacts from all analyzed scenarios are compared directly to applicable PSD Class I and Class II Increments, and to the NAAQS and WAAQS when background pollutant concentrations are added. Tables C.1.1-C.1.20 provide the maximum modeled NO_2 concentrations at each of the sensitive areas. The maximum modeled SO_2 concentrations are provided in Tables C.2.1-C.2.20, and the maximum modeled PM_{10} and $PM_{2.5}$ impacts are provided in Tables C.3.1-C.3.20, and Tables C.4.1-C.4.20, respectively. Summaries of results by scenario for NO_x, SO_2, PM_{10}, and $PM_{2.5}$ are provided in Tables C.10.1-C10.2, C.10.3-C.10.4, C.10.5-C.10.6, and C.10.7-C.10.8, respectively.

Table 2.3 Background Ambient Air Quality Concentrations (μg/m³).

Pollutant	Averaging Period	Measured Background Concentration
NO_2[1]	Annual	3.4
PM_{10}[2]	24-hour	33
	Annual	16
$PM_{2.5}$[2]	24-hour	13
	Annual	5
SO_2[3]	3-hour	132
	24-hour	43
	Annual	9

1 Data collected at Green River Basin Visibility Study site, Green River, Wyoming during period January-December 2001 (Air Resource Specialists 2002).
2 Data collected by WDEQ-AQD at Emerson Building, Cheyenne, Wyoming, Year 2001.
3 Data collected at LaBarge Study Area at the Northwest Pipeline Craven Creek Site 1982-1983.

In-Field Results

The maximum predicted concentrations of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ within and nearby the JIDPA, for each of the 20 modeled direct project and cumulative scenarios are provided in Appendix C, Tables C.5.1 - C.5.20. A summary of results by scenario is provided in Tables C.10.9 and C.10.10. Predicted direct project and cumulative impacts are added to representative background pollutant concentrations and are compared to applicable NAAQS and WAAQS.

2.4.2 Deposition

Maximum predicted S and N deposition impacts were estimated for each analyzed direct project and cumulative source scenario. The POSTUTIL utility was used to estimate total S and N fluxes from CALPUFF predicted wet and dry fluxes of SO_2, SO_4, NO_x, NO_3, and HNO_3. CALPOST was then used to summarize the annual S and N deposition values from the POSTUTIL program. Predicted direct project impacts were compared to the NPS deposition analysis thresholds (DATs) for total N and S deposition in the western U.S., which are defined as 0.005 kilograms per hectare per year (kg/ha-year) for both N and S. Total deposition impacts from direct project and regional sources were compared to USDA Forest Service levels of

concern, defined as 5 kg/ha-yr for S and 3 kg/ha-yr for N (Fox et al. 1989). It is understood that the USDA Forest Service no longer considers these levels of concern to be protective; however, in the absence of alternative Federal Land Manager (FLM)-approved values, comparisons with these values were made. The maximum predicted N and S deposition impacts for each of the analyzed scenarios are provided in Appendix C, Tables C.6.1 – C.6.4. A summary of results by scenario is provided in Tables C.10.11 - C.10.14.

2.4.3 <u>Sensitive Lakes</u>

The CALPUFF-predicted annual deposition fluxes of S and N at sensitive lake receptors were used to estimate the change in acid neutralizing capacity (ANC). A list of the sensitive lakes and the background ANC values is provided in Table 2.4. The change in ANC was calculated following the January 2000, USDA Forest Service Rocky Mountain Region's *Screening Methodology for Calculating ANC Change to High Elevation Lakes, User's Guide* (USDA Forest Service 2000). The predicted changes in ANC are compared with the USDA Forest Service's Level of Acceptable Change (LAC) thresholds of 10% for lakes with ANC values greater than 25 microequivalents per liter (μeq/l) and 1 μeq/l for lakes with background ANC values of 25 μeq/l or less. Of the seven lakes listed in Table 2.4 and identified by the USDA Forest Service as acid sensitive, Upper Frozen and Lazy Boy lakes are considered extremely acid sensitive.

ANC calculations were performed for each of the analyzed direct project and cumulative source scenarios, with the results presented in Appendix C, Tables C.7.1 – C.7.20. A summary of results by scenario is provided in Tables C.10.15 and C.10.16.

Table 2.4 Background ANC Values for Acid Sensitive Lakes.

Wilderness Area	Lake	Latitude (Deg-Min-Sec)	Longitude (Deg-Min-Sec)	10th Percentile Lowest ANC Value (μeq/l)	Number of Samples	Monitoring Period
Bridger	Black Joe	42°44'22"	109°10'16"	67.0	61	1984-2003
Bridger	Deep	42°43'10"	109°10'15"	59.9	58	1984-2003
Bridger	Hobbs	43°02'08"	109°40'20"	69.9	65	1984-2003
Bridger	Lazy Boy	43°19'57"	109°43'47"	18.8	1	1997
Bridger	Upper Frozen	42°41'13"	109°09'39"	5.0	6	1997-2003
Fitzpatrick	Ross	43°22'41"	109°39'30"	53.5	44	1988-2003
Popo Agie	Lower Saddlebag	42°37'24"	108°59'38"	55.5	43	1989-2003

2.4.4 Visibility

The CALPUFF model-predicted concentration impacts at far-field PSD Class I and sensitive Class II areas and at mid-field regional community locations were post-processed with CALPOST to estimate potential impacts to visibility (regional haze) for each analyzed direct project and cumulative source scenario for comparison to visibility impact thresholds. CALPOST estimated visibility impacts from predicted concentrations of PM_{10}, $PM_{2.5}$, SO_4, and NO_3. PM_{10} emissions from project traffic emissions were not included in the total estimated impacts (see Section 2.4.1), only the impacts to visibility from $PM_{2.5}$ were considered.

Visibility impairment calculations were performed using estimated natural background visibility conditions obtained from FLAG (2000) (FLAG method) and measured background visibility conditions from the Bridger Wilderness Area and Yellowstone National Park IMPROVE sites (IMPROVE method). IMPROVE-method data are based on the quarterly mean of the 20% cleanest days as shown in Table 2.5.

Table 2.5 IMPROVE Background Aerosol Extinction Values.[1]

IMPROVE Site	Quarter	Hygroscopic $(Mm^{-1})^2$	Non-hygroscopic $(Mm^{-1})^2$	Monitoring Period
Bridger Wilderness Area	1	0.845	1.666	1989-2002
	2	1.730	3.800	1988-2002
	3	1.902	5.637	1988-2002
	4	0.915	2.035	1988-2002
Yellowstone National Park	1	1.126	2.973	1988-2002
	2	1.502	4.531	1988-2002
	3	1.811	7.330	1988-2002
	4	1.033	2.990	1988-2002

1 Cooperative Institute for Research in the Atmosphere (2003).
2 Mm^{-1} = inverse megameters.

The IMPROVE background visibility data are provided as reconstructed aerosol total extinction data, based on the quarterly mean of the 20% cleanest days measured at the Bridger Wilderness Area and Yellowstone National Park IMPROVE sites for the historical monitoring period of record through December 2002.

For the FLAG method, estimated natural background visibility values as provided in Appendix 2.B of FLAG (2000), and monthly relative humidity factors as provided in the *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule* (EPA 2003) were used. The natural background visibility data used with the FLAG visibility analysis for each area analyzed are shown in Table 2.6.

Table 2.6 FLAG Report Background Extinction Values.[1]

Site	Season	Hygroscopic (Mm^{-1})[2]	Non-hygroscopic (Mm^{-1})[2]
Bridger, Fitzpatrick , Teton, and Waskakie Wilderness Areas, and Grand Teton and Yellowstone National Parks[3]	Winter	0.6	4.5
	Spring	0.6	4.5
	Summer	0.6	4.5
	Fall	0.6	4.5

1 FLAG (2000).
2 Mm^{-1} = inverse megameters
3 Also used for Popo Agie Wilderness, Wind River Roadless Area, and regional communities.

The IMPROVE method used the measured background conditions at the Bridger Wilderness Area and at the Yellowstone National Park site, and the monthly relative humidity factors as provided in EPA (2003). Visibility data from the Bridger Wilderness Area IMPROVE site were used for the Bridger, Fitzpatrick, and Popo Agie Wilderness Areas and for the Wind River Roadless Area, and visibility data from the Yellowstone National Park IMPROVE site were used for the Teton and Washakie Wilderness Areas and for Grand Teton and Yellowstone National Parks. Background visibility data measured at the Bridger Wilderness Area IMPROVE site are cleaner (more pristine) than the FLAG data during quarters 1 and 4. Therefore since visibility impacts are calculated as percent increases of modeled light extinction above background values, the use of these more pristine background data will result in higher estimated visibility impacts than with the use of the FLAG natural background data during these quarters.

CALPOST visibility processing method "MVISBK=6" was used in combination with the two sets of background visibility data and monthly relative humidity factors. These visibility processing methods are consistent with the original DEIS and AQTSD analyses.

Background visibility data monitored at the Bridger Class I Wilderness Area IMPROVE site, an area more pristine than populated residential areas (i.e., lacking suburban/rural emissions such as

those from traffic and wood stoves), were used to estimate potential visibility impairment at the regional community locations. These data were used because no visibility monitoring has been conducted in the populated areas of the region. Since visibility impacts are calculated as percent increases of modeled light extinction above background values, the use of a more pristine background likely results in an overestimate of potential visibility impacts at these locations.

As recommended in EPA (2003), monthly relative humidity factors determined from the Bridger IMPROVE site were used for the Bridger and Fitzpatrick Wilderness Areas; Yellowstone IMPROVE data were used for Yellowstone and Grand Teton National Parks and for the Teton Wilderness Area; and North Absaroka IMPROVE data were used for the Washakie Wilderness Area. Relative humidity data for the Bridger site were also used for the Popo Agie Wilderness Area and for the Wind River Roadless Area. Table 2.7 provides the relative humidity factors (f[RH]) that were used in the analyses.

Table 2.7 Monthly f(RH) Factors from Regional Haze Rule Guidance.

IMPROVE Site	Quarter	Months	f(RH) Values
Bridger Wilderness Area[1]	1	Jan, Feb, Mar	2.5, 2.3, 2.3
	2	Apr, May, Jun	2.1, 2.1, 1.8
	3	Jul, Aug, Sep	1.5, 1.5, 1.8
	4	Oct, Nov, Dec	2.0, 2.5, 2.4
North Absaroka Wilderness Area[2]	1	Jan, Feb, Mar	2.4, 2.2, 2.2
	2	Apr, May, Jun	2.1, 2.1, 1.9
	3	Jul, Aug, Sep	1.6, 1.5, 1.8
	4	Oct, Nov, Dec	2.0, 2.3, 2.4
Yellowstone National Park[3]	1	Jan, Feb, Mar	2.5, 2.3, 2.2
	2	Apr, May, Jun	2.1, 2.1, 1.9
	3	Jul, Aug, Sep	1.7, 1.6, 1.8
	4	Oct, Nov, Dec	2.1, 2.4, 2.5

[1] Used for Bridger, Fitzpatrick, and Popo Agie Wilderness Areas, Wind River Roadless Area, and regional communities.
[2] Used for Washakie Wilderness Area.
[3] Used for Teton Wilderness Area and Yellowstone and Grand Teton National Parks.

Change in atmospheric light extinction relative to background conditions is used to measure regional haze. Analysis thresholds for atmospheric light extinction are set forth in FLAG (2000), with the results reported in percent change in light extinction and change in deciview (dv). The thresholds are defined as 5% and 10% of the reference background visibility or 0.5 and 1.0 dv for project sources alone and cumulative source impacts, respectively. The BLM considers a 1.0 dv change as a significant adverse impact; however, there are no applicable local, state, tribal, or federal regulatory visibility standards. It is the responsibility of the FLM or Tribal government responsible for that land to determine when adverse impacts are significant or not, and these may differ from BLM levels for significant adverse impacts (e.g., the USDA Forest Service considers a 0.5-dv change as a threshold for protection of visibility in sensitive areas).

Far-Field Results

The maximum predicted far-field visibility impacts for each of the analyzed scenarios are provided in Appendix C, Tables C.8.1 – C.8.20. A summary of results by scenario is provided in Tables C.10.17 - C.10.20. Predicted impacts are shown using both the FLAG and IMPROVE background visibility data. For each Class I and sensitive Class II area the maximum predicted change in dv and the estimated number of days per year that could potentially exceed 0.5 and 1.0 dv thresholds are provided. Tables that present all predicted impacts above the thresholds and the days when the impacts were predicted to occur are also provided in Appendix C (Tables C.8.21 – C.8.32) for each Class I and sensitive Class II area where the maximum predicted change in dv is estimated to exceed 0.5 and 1.0 dv thresholds.

Mid-Field Results

The maximum predicted mid-field visibility impacts for each of the analyzed Preferred Alternative scenarios are provided in Appendix C, Tables C.9.1 – C.9.20. A summary of results by scenario is provided in Tables C.10.21 - C.10.24. Predicted impacts are shown using both the FLAG and IMPROVE background visibility data. The maximum predicted visibility impacts (dv) at regional communities and the estimated number of days per year that could potentially exceed the 1.0 dv threshold are provided for each community location using both the FLAG and IMPROVE background visibility data. Tables that present all predicted impacts above the

threshold and the days when the impacts were predicted to occur are also provided in Appendix C (Tables C.9.21 – C.9.40) for each regional community location.

3.0 EARLY-PROJECT-DEVELOPMENT STAGE MODELING

At the request of the BLM, an analysis of JIDP early-project-development stage air quality conditions in the vicinity of the JIDPA was performed. What has been modeled and presented in the DEIS and supplemented herein for the Preferred Alternative (see Section 2.0) considers the "most likely case" emissions scenarios for the JIDP. However, when quantifying maximum cumulative impacts regionally, it is possible that peak regional impacts could occur prior to JIDP maximum emissions as a result of the development of other natural gas projects in the region, specifically the Pinedale Anticline Project (PAP), South Piney Project (SPP), Riley Ridge Project (RRP), and Jack Morrow Hills Project (JMHP). The BLM requested this analysis because it was considered probable that regional impacts would be greatest during the early stages of JIDP development due to accelerated development paces in these nearby project areas. Unlike the Preferred Alternative modeling analyses (see Section 2.0), modeling analyses of the early-project-development stage emissions are not directly comparable to the results presented in the DEIS for reasons explained below.

The goal of this analysis was to quantify a maximum PM_{10}, $PM_{2.5}$, NO_x, and SO_2 emissions scenario that could potentially occur within the next few years in the air basin located southwest of the Bridger Wilderness Area, as a result of 1) increased well drilling and flaring activities among several active natural gas field developments, and 2) expanded compression requirements, beyond what was analyzed for the DEIS. To accomplish this goal a study baseline year, determined based on available background pollutant data, was selected. Emissions estimates of well drilling and flaring were quantified for this baseline year for the JIDP, PAP, SPP, RRP and JMHP. Emission estimates of well drilling, flaring, and expanded compression for these projects, and other companies operating within these project areas, which are representative of current year or early-project-development stage conditions, were then determined. Emission estimates for the baseline year were subtracted from the early-project-development stage emissions. This emissions "netting" determined the emissions changes from background to current conditions, and avoided "double-counting" existing background conditions in future air quality conditions. These emission changes were then modeled in combination with other JIDP sources and regional sources to estimate both project-specific and cumulative pollutant impacts

at far-field PSD Class I and sensitive Class II areas, at mid-field Wyoming regional community locations, and within the JIDPA. Other JIDP sources include expanded compression estimates beyond what was analyzed for the DEIS, production and construction traffic emissions and wellsite heater emission representative of early project emissions, and wind erosion as it was calculated and analyzed in the DEIS (BLM 2005, TRC 2004). Non-project regional emissions, with the exception of the PAP, SPP, RRP, and JMHP, included in the DEIS and as described in detail in the AQTSD were included in the modeling analyses. For the PAP, SPP, RRP, and JMHP, the well drilling and flaring emissions differences were included along with any emissions that were included in the permitted source and RFD inventories for the DEIS analyses. The regional emissions include sources newly permitted by the state agencies through June 30, 2003, RFD, RFFA, and Operator-projected compression estimates. These data were originally compiled as part of the DEIS using data obtained from the BLM, WDEQ-AQD, CDPHE/APCD, UDEQ-AQD, and IDEQ. These inventories were updated to include additional source emissions permitted through March 31, 2004, and these additional source emissions were included in the cumulative modeling analyses.

The emissions information available for well drilling and flaring activities and expanded compression requirements, obtained prior to a cut-off date of May 26, 2005, were used in the analysis. A study baseline year of 2002 was used because background visibility data through 2002 were available. Year 2006 was selected as representative of a maximum emissions scenario for regional emissions. The 2006 inventory also included recent expanded compression estimates, in addition to the expanded compression estimates that were obtained prior to the DEIS analyses and included in the DEIS modeling. Details on the additional emissions inventories developed for this analysis are provided in Section 3.1. The modeling analyses of the early-project-development stage emissions are not directly comparable to the results presented in Section 2.4 or in the DEIS due to differences (emissions increases) in the regional (non-project) emissions inventories and the expanded compression estimates included in this analysis.

The modeling analysis was performed generally following the methodologies used for the DEIS and AQTSD. The CALMET and CALPUFF model versions that were used for the DEIS

analysis were used to estimate direct JIDP and cumulative pollutant impacts at far-field PSD Class I and sensitive Class II areas, and at mid-field Wyoming regional community locations and within the JIDPA. A discussion of the model parameters is provided in Section 3.2. Model results for the early-project-development stage modeling scenarios are summarized in Section 3.3.

3.1 EMISSIONS INVENTORIES

3.1.1 Year 2006 Drilling and Flaring Emissions

Emissions for drilling activities and completion flaring were developed for the JIDP, PAP, SPP, RRP, and JMHP based on a review of proposed well development rates and drilling activities for each project, from information available from the Wyoming Oil and Gas Conservation Commission (WOGCC) for drill rig "spud" activity data, and from information and estimates provided by the BLM, Pinedale Field Office. Emissions were determined for monthly drilling activities to capture seasonal variations in drilling. Table 3.1 provides a summary of the project-specific drilling rig and flare information that was used for year 2006 modeling.

A WDR250 was used for the JIDP (i.e., 20 drill rigs operating continuously per month), with 3 completion flares operating continuously per month. For the JIDP it was assumed that 50% of the wells would be directionally drilled and 50% of the wells would be straight hole, approximately 80% of the wells would have flareless completions, and there would be an 80%/20% combination of drilling engines with Tier 0 and Tier 1 emissions levels, respectively. Drill rig engine sizes and flare assumptions are identical to those used for the DEIS analyses. Three additional drill rigs and 1 additional completion flare were also added to account for potential expanded Jonah Field operations. These emissions were determined using JIDP emissions estimates, assuming directional drilling for each of the three rigs and an 80%/20% combination for Tier 0/Tier 1 drill rig emissions.

Table 3.1 Summary of Year 2006 Drilling Rigs Counts and Flaring Operations.

Field	Months	Operating Drilling Rigs	Operating Flares
JIDP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3
JIDP – Expanded Jonah Field Operators	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
PAP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	25, 25, 25, 25, 25, 30, 35, 35, 35, 30, 25, 25	4, 4, 4, 4, 4, 5, 5, 5, 5, 5, 4, 4
SPP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 3, 3, 3, 3, 3, 3, 0, 0	0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0
RRP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	2, 2, 2, 2, 3, 3, 6, 6, 6, 3, 2, 2	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
JMHP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
Pinedale Field Office – Wildcat Rigs	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 0, 0, 3, 3, 0, 0, 0, 0	0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0

For the PAP, the 2006 monthly well development rates were determined from well development rates obtained from the WOGCC for year 2004 and from drill rig estimates provided by the BLM, Pinedale Field Office, which include estimates from Questar, BP AMOCO, Yates, Anschutz, Shell, Stone Energy, and Ultra Petroleum. Emissions data were determined from drill rig data obtained from the WDEQ for Questar Corporation's year-round drilling project along the Pinedale Anticline. Drill rig emissions were calculated using the emissions data for the 6 year-

round drilling rigs from Questar's year-round drilling project, assuming an additional 6 5,000 horsepower (hp) drill rigs to account for other Operator's year-round drilling projects, and basing the remainder of the drill rig assumptions off Questar's data for a 3,216 hp drill rig. Since actual drill rig data was available there were no additional assumptions made for straight/directional drill rig percentages. Emissions from Questar's 6 year-round drilling rigs assumes Tier 0 emissions for 3 drill rigs, Tier 1 emissions for 2 drill rigs, and a combination of Tier 0/Tier 1 emissions on 1 drill rig. Emissions from the six 5,000 hp year-round drill rigs and the additional 3,216 hp drill rigs were determined assuming an 80%/20% Tier 0/Tier 1 emissions ratio. Completion flaring estimates assume approximately 80% flareless completions, with flare emissions estimates obtained from the Pinedale Anticline EIS (BLM 1999). Emissions calculations for the drill rigs and completion flares are provided in Appendix D.

For the SPP, year 2006 drilling activity was assumed to occur only during the summer months (May-Oct) with 3 drill rigs and 1 flare operating continuously for these months. Two 2,100 hp rigs and 1 2,600 hp rig were assumed. Flaring emissions estimates were obtained from the SPP *Emissions Inventory for the South Piney Natural Gas Development Project* (BLM 2003). The RRP estimates include 2 to 6 drill rigs (each at 2,100 hp) and 1 flare operating throughout the year with an increase in activity in the summer months. JIDP flaring emissions were utilized for the RRP. JMHP estimates include a single operating rig (2,600 hp) and flare operating continuously throughout the year (JIDP flaring emissions were used). 3 additional 5,000 hp "wildcat" drilling rigs and 1 completion flare were added to the inventory to account for exploratory drilling north of the Pinedale Anticline in the summer months (July and August). For the SPP, RRP, JMHP, and the "wildcat" rigs it was assumed that 100% of the wells will be straight hole, 100% of the wells will be flared, and 100% of drilling engines will be at Tier 0 emissions levels. Emissions calculations for each project area are provided in Appendix D.

3.1.2 Year 2002 Drilling and Flaring Emissions

Baseline study year emissions for drilling activities and completion flaring were developed for the JIDP, PAP, SPP, RRP, and JMHP based on a review of actual monthly well development

rates and drilling activities that occurred in the region during 2002. Year 2002 emissions were quantified to determine the level of emissions that existed in background ambient air quality during 2002. Well development rates and drilling activities for each project were determined from WOGCC data for drill rig "spud" activity that occurred in the project areas during year 2002.

For each project area drill rig engine sizes and flaring estimates were assumed to be consistent with the estimates used for the 2006 calculations. For the PAP year 2002 calculations, 3,216 hp engine sizes (Questar data) were used for each drill rig. It was assumed that during year 2002 all drilling engines would be at Tier 0 emissions levels. For all project areas, 100% straight hole drilling was assumed. Completion flaring emissions was determined from a review of actual well development rates and the assumption that 100% of the developed wells required flaring. A summary of the drilling rig and flare information that was used for the year 2002 modeling is provided in Table 3.2.

3.1.3 <u>Expanded Compression</u>

The BLM, field Operators, and other gas compression companies operating nearby were contacted to determine an estimate of expanded field compression requirements for the area. The expanded compression is in addition to the compression estimates that were obtained, from field Operators, state permits, and RFD, and modeled for the DEIS. A summary of the recent (up through May 26, 2005) expanded compression estimates used for this analysis and the field compression estimates that were included in the DEIS analyses are provided in Table 3.3. Emissions for expanded field compression were calculated based on best available data information obtained from the WDEQ-AQD. These emissions are shown in Appendix D, Tables D.1.54 – D.1.60.

Table 3.2 Summary of Year 2002 Drilling Rigs Counts and Flaring Operations.

Field	Months	Operating Drilling Rigs	Operating Flares
JIDP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	6, 6, 6, 8, 5, 7, 4, 5, 8, 5, 4, 5	3, 3, 3, 4, 2, 3, 2, 2, 4, 2, 2, 2
PAP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	4, 3, 3, 1, 7, 3, 8, 5, 3, 3, 0, 1	2, 1, 1, 1, 3, 1, 4, 2, 1, 1, 0, 1
SPP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 0, 0, 0, 0, 2, 0, 2, 1	0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1
RRP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 1, 2, 2, 4, 2, 2, 1, 1	0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1
JMHP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

Table 3.3 Summary of Expanded Field Compression Estimates.

Field	Permitted/RFD Compression Included in DEIS Analysis	Expanded Compression Included in DEIS Analysis	Expanded Compression Estimates Beyond those included in the DEIS
JIDP	13,269 hp (Falcon) 0 hp (Luman) 9,405 hp (Bird) 5,285 hp (Jonah)	7,336 hp (Falcon) 11,604 hp (Luman) 11,004 hp (Bird) 3,900 hp (Jonah)	2,888 hp (Falcon) 11,248 hp (Luman) 30,928 hp (Bird) 3,000 hp (Jonah)
PAP	12,094 hp (Paradise) 25,110 hp (Gobblers Knob, Mesa 1, Mesa 2)	7,336 hp (Paradise) 10,000 hp (Gobblers Knob)	9,624 hp (Paradise) 1,160 hp (Gobblers Knob)
SPP	48,500 hp	0 hp	0 hp
RRP	0 hp	0 hp	0 hp
JMHP	3,480 hp	0 hp	2,940 hp

3.1.4 Permitted Source Emissions Inventory

As part of the JIDP DEIS, an inventory of permitted source emissions was developed using data obtained from the WDEQ-AQD, CDPHE/APCD, UDEQ-AQD, and IDEQ. This inventory included sources that had received permits through June 30, 2003. The inventory was been updated to include additional source emissions permitted through March 31, 2004. These additional source emissions were obtained from the source inventory that was developed by TRC for the Atlantic Rim Natural Gas Project and the Seminoe Road Gas Development Project. The extent of the inventory domain for these projects and the JIDP study domain are shown on Figure 2. The cross-hatched area on Figure 2 illustrates the area within the JIDP study domain where an additional nine months (July 1, 2003 – March 31, 2004) of permitted source emissions were available and included in the modeling analysis. A list of these additional sources is summarized in Appendix, Tables D.1.61 and D.1.63.

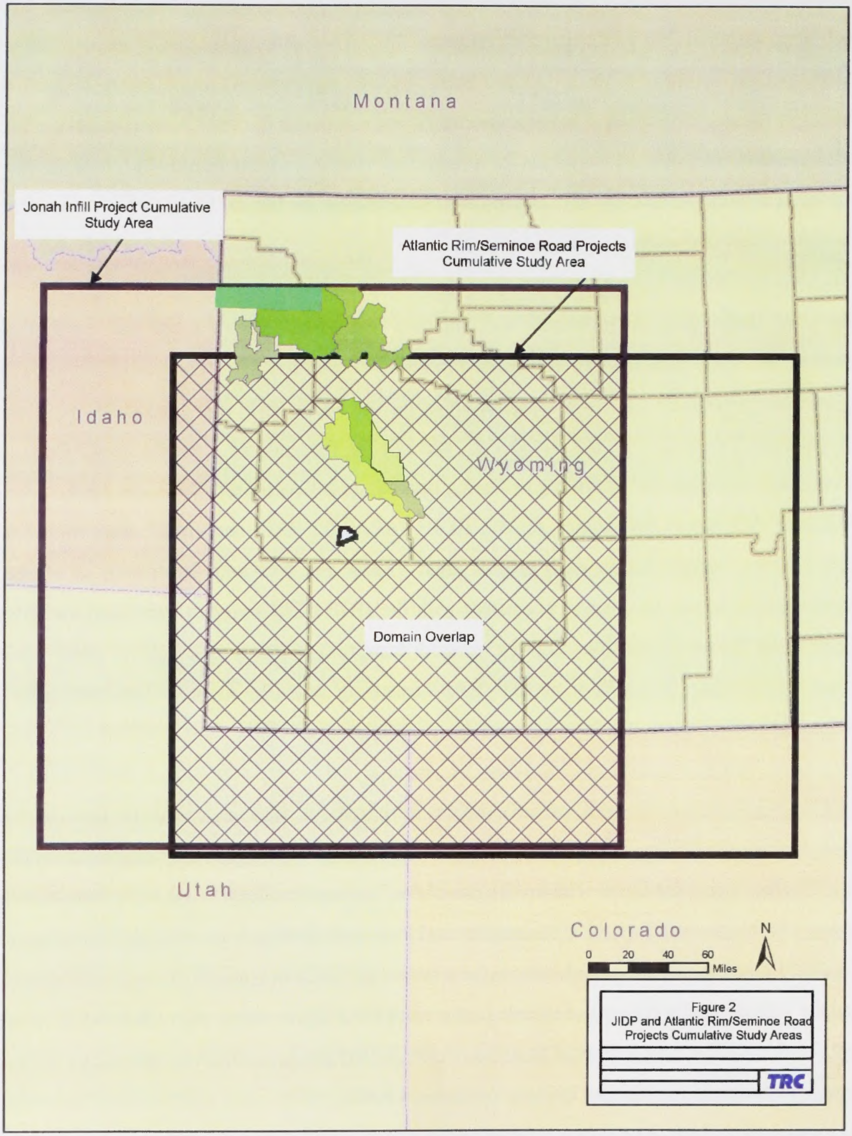
3.2 MODEL PARAMETERS

The modeling analysis was performed generally following the methodologies used for the DEIS and AQTSD. The CALMET (Version 5.53) and CALPUFF (Version 5.711) model versions used for the DEIS analyses were used to estimate both project and cumulative pollutant impacts at far-field PSD Class I and sensitive Class II areas, at mid-field Wyoming regional community locations, and within the JIDPA. All CALPUFF model methodologies, switch settings, source parameters, and model receptors are identical to the analyses performed for the DEIS unless otherwise indicated. Modeled emissions included JIDP, PAP, SPP, RRP, and JMHP well drilling and flaring emissions differences calculated on a monthly basis (2006 minus the baseline study year 2002), well drilling and flaring estimates for other expanded Jonah Field Operators and "wildcat" drill rigs, other JIDPA emissions, expanded compression emissions, sources permitted by state agencies through March 31, 2004, and the RFD and RFFA emissions that were determined for the DEIS. The 'other' JIDPA emissions sources include expanded compression estimates, beyond what was analyzed for the DEIS, production and construction traffic emissions and wellsite heater emission representative of early project emissions, and wind erosion. For

early-project-development stage analyses, production traffic, wellsite heater, and wind erosion emissions assumed 700 wells operating in year 2006. This assumption was based off 198 wells (developed in the JIDPA since January 2002 – DEIS assumption) and 2 years of well field development at a 250 WDR. Construction traffic emissions for the JIDPA were based on WDRs determined in Sections 3.1.1 and 3.1.2. Production traffic, construction traffic, wellsite heater, and wind erosion emissions, and assumptions determined for the DEIS analyses were used for the early-project-development stage analyses.

The total direct project emissions and regional emissions modeled for the early-project-development stage analyses are shown in Appendix D Table D.1.1. The calculated emissions differences for drilling rig and flaring activities for the JIDP, PAP, SPP, and RRP are given in Appendix D, Tables D.1.11, D.1.30, D.1.45, and D.1.36, respectively. For the JMHP there were no emissions changes due to drilling or flaring operations between years 2002 and 2006.
Emissions differences determined for the JIDP, PAP, SPP, RRP, and JMHP were modeled as point sources, spread within each project area. These are locations are shown in Figure 3. Representative source parameters consistent with the JIDP DEIS analyses were used for drill rig engines and flares. Emissions from expanded compression were modeled as point sources located at existing compressor station locations using existing source characterizations or estimated based on best available information.

The CALMET wind fields used for early-project-development stage analysis differ from the wind fields used for the DEIS and Preferred Alternative modeling. The CALMET wind fields used for this modeling were developed without the use of the "kinematic effects" CALMET switch setting option, which was used for all DEIS analyses and Preferred Alternative modeling. The change in wind field development was made to correct a potential CALMET model anomaly, which could produce unrealistically high wind speeds in the wind field layers above the surface layer. Model tests for the DEIS cases indicated that the use of IKINE produced more conservative (slightly higher) model predictions at the Bridger Wilderness Area.


Montana
Jonah Infill Project Cumulative Study Area
Atlantic Rim/Seminoe Road Projects Cumulative Study Area
Idaho
Wyoming
Domain Overlap
Utah
Colorado
N
0 20 40 60 Miles
Figure 2
JIDP and Atlantic Rim/Seminoe Road Projects Cumulative Study Areas
TRC

Recent CALMET model peer review studies and model developer suggestions are the basis for this change. The switch setting was originally selected based on peer review of the 1995 Southwest Wyoming Technical Air Forum (SWWYTAF) wind fields, which indicated that surface wind speeds from CALMET were underestimated. The use of IKINE produced better agreement with surface wind observations. In addition since the JIDPA is approximately 30 km from the Bridger Wilderness the use of terrain was justified as "best science" to more appropriately model terrain affects.

3.3 MODEL RESULTS

CALPUFF modeling was performed to calculate direct JIDP impacts for early-project-development stage conditions and for estimating cumulative impacts from potential project and regional sources. Regional emissions inventories of existing state-permitted, RFD, and RFFA sources were modeled in combination with project sources to provide cumulative impact estimates for each scenario.

For each far-field sensitive area, CALPUFF-modeled concentration impacts were post-processed with POSTUTIL and CALPOST to derive: 1) concentrations for comparison to ambient air quality standards (WAAQS and NAAQS), PSD Class I significance thresholds, and PSD Class I and II Increments; 2) deposition rates for comparison to sulfur (S) and nitrogen (N) deposition levels of concern and to calculate changes to ANC at sensitive lakes; and 3) light extinction changes for comparison to visibility impact thresholds. For the mid-field analyses, CALPOST concentrations were post-processed to estimate light extinction changes at regional communities for comparison to the visibility impact thresholds. For in-field locations, CALPUFF concentrations were post-processed to compute maximum concentration impacts for comparison to WAAQS and NAAQS.

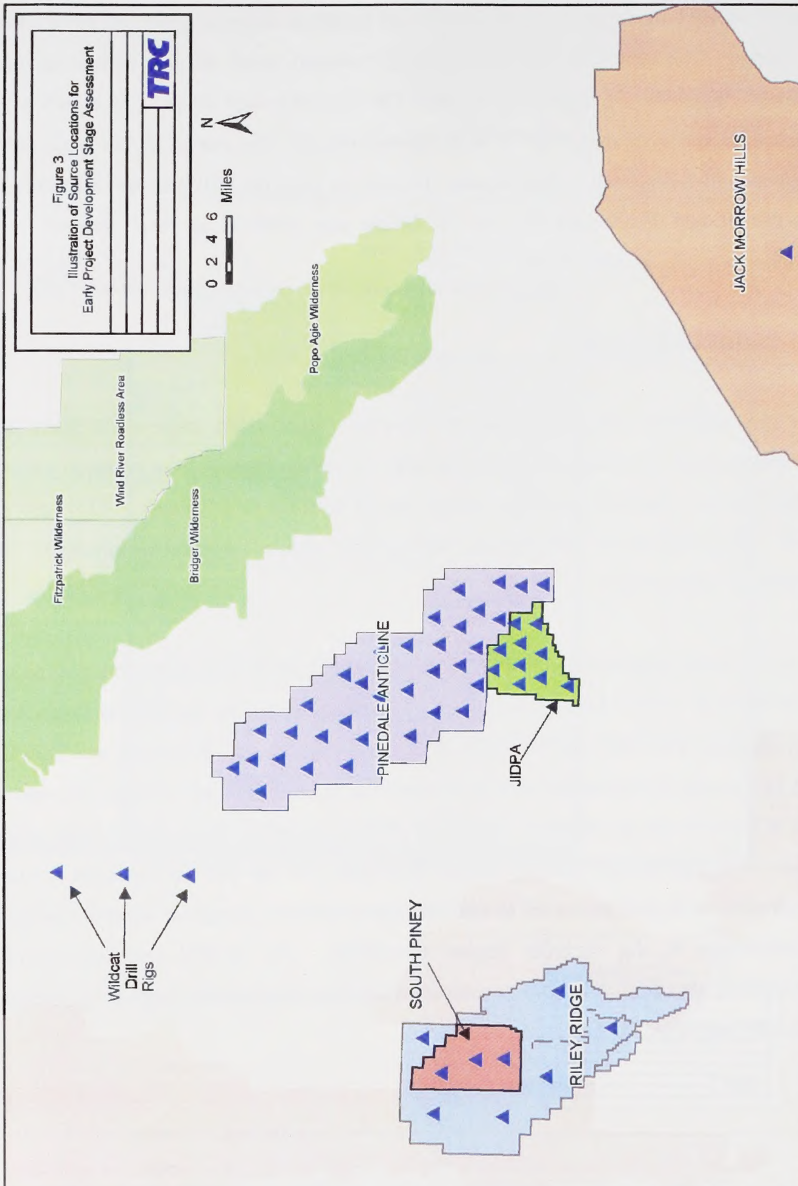


Figure 3
Illustration of Source Locations for
Early Project Development Stage Assessment
TRC
0 2 4 6 Miles
N
Fitzpatrick Wilderness
Wind River Roadless Area
Bridger Wilderness
Popo Agie Wilderness
JACK MORROW HILLS
PINEDALE ANTICLINE
JIDPA
Wildcat Drill Rigs
SOUTH PINEY
RILEY RIDGE

3.3.1 Concentration

The CALPOST and POSTUTIL post-processors were used to summarize concentration impacts of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ at PSD Class I and sensitive PSD Class II areas, and at in-field locations. Predicted impacts are compared to applicable ambient air quality standards, PSD Class I and Class II Increments, and significance levels as shown in Table 2.2. The PSD demonstrations serve information purposes only and do not constitute a regulatory PSD Increment consumption analysis, which may be completed as necessary by WDEQ-AQD. The approach to this PSD screening analysis is consistent with the original DEIS and AQTSD analyses.

PM_{10} concentrations were computed by adding predicted CALPUFF concentrations of PM_{10} (fraction of PM greater than $PM_{2.5}$), $PM_{2.5}$, SO_4, and NO_3. $PM_{2.5}$ concentrations were calculated as the sum of modeled $PM_{2.5}$, SO_4, and NO_3 concentrations. Consistent with the DEIS analyses, for post-processing the PM_{10} impacts at all far-field receptor locations, project traffic emissions of PM_{10} were not included in the total estimated impacts, only the $PM_{2.5}$ impacts were considered. However, the total PM_{10} impacts from traffic emissions were included in all in-field concentration estimates.

Far-field Results

The maximum predicted concentrations of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ at each of the analyzed PSD Class I and sensitive Class II areas, for direct project and cumulative source scenarios, are provided in Appendix E. Predicted direct project impacts are compared to applicable PSD Class I and Class II Increments and significance levels, and then added to representative background pollutant concentrations (Table 2.3), the total concentration is compared to applicable NAAQS and WAAQS. Cumulative impacts are compared directly to applicable PSD Class I and Class II Increments, and to the NAAQS and WAAQS when background pollutant concentrations are added. Tables E.1.1 and E.1.2 provide the maximum modeled NO_2 concentrations at each of the sensitive areas. The maximum modeled SO_2 concentrations are provided in Tables E.2.1 and E.2.2, and the maximum modeled PM_{10} and $PM_{2.5}$ impacts are provided in Tables E.3.1 and

E.3.2, and Tables E.4.1 and E.4.2, respectively. Results summaries for NO_x, SO_2, PM_{10}, and $PM_{2.5}$ are provided in Tables E.10.1, E.10.2, E.10.3, and E.10.4, respectively.

In-Field Results

The maximum predicted concentrations of NO_2, SO_2, PM_{10}, and $PM_{2.5}$ within and nearby the JIDPA, for both direct project and cumulative scenarios are provided in Appendix E, Tables E.5.1 and E.5.2. Results summaries are provided in Table E.10.5. Predicted direct project and cumulative impacts are added to representative background pollutant concentrations and are compared to applicable NAAQS and WAAQS.

3.3.2 Deposition

Maximum predicted S and N deposition impacts were estimated for both direct project and cumulative source scenarios. The POSTUTIL utility was used to estimate total S and N fluxes from CALPUFF predicted wet and dry fluxes of SO_2, SO_4, NO_x, NO_3, and HNO_3. CALPOST was then used to summarize the annual S and N deposition values from the POSTUTIL program. Predicted direct project impacts were compared to the NPS (0.005 kg/ha-year) DAT for total N and S deposition in the western U.S. Total deposition impacts from direct project and regional sources were compared to USDA Forest Service levels of concern, 5 kg/ha-yr for S and 3 kg/ha-yr for N. It is understood that the USDA Forest Service no longer considers these levels of concern to be protective; however, in the absence of alternative FLM-approved values, comparisons with these values were made. The maximum predicted N and S deposition impacts for each of the analyzed scenarios are provided in Appendix E, Tables E.6.1 and E.6.2. Results summaries are provided in Table E.10.6 and E.10.7.

3.3.3 Sensitive Lakes

The CALPUFF-predicted annual deposition fluxes of S and N at sensitive lake receptors were used to estimate the change in ANC. A list of the sensitive lakes and the background ANC values is provided in Table 2.4. The change in ANC was calculated following the January 2000, USDA Forest Service guidance. The predicted changes in ANC are compared with the USDA

Forest Service's Level of LAC thresholds of 10% for lakes with ANC values greater than 25 µeq/l and 1 µeq/l for lakes with background ANC values of 25 µeq/l or less.

ANC calculations were performed for both direct project and cumulative source scenarios, with the results presented in Appendix E, Tables E.7.1 and E.7.2. Results summaries are provided in Table E.10.8.

3.3.4 Visibility

The CALPUFF model-predicted concentration impacts at far-field PSD Class I and sensitive Class II areas and at mid-field regional community locations were post-processed with CALPOST to estimate potential impacts to visibility (regional haze) for both direct project and cumulative source scenarios for comparison to visibility impact thresholds. CALPOST estimated visibility impacts from predicted concentrations of PM_{10}, $PM_{2.5}$, SO_4, and NO_3. PM_{10} emissions from project traffic emissions were not included in the total estimated impacts (see Section 2.4.1), only the impacts to visibility from $PM_{2.5}$ were considered.

Visibility impairment calculations were performed using both the FLAG and IMPROVE background data sets as described in Section 2.4.4. CALPOST visibility processing methods "MVISBK=6" and "MVISBK=2" were used in combination with the two sets of background visibility data. CALPOST method "MVISBK=6", as described in Section 2.4.4, utilizes monthly relative humidity factors in combination with background visibility data to estimate light extinction changes. This method was used for all DEIS analyses and Preferred Alternative modeling. CALPOST method "MVISBK=2" utilizes hourly relative humidity data from surface meteorological station measurements (included as part of the CALMET windfield data) in combination with background visibility data to compute potential light extinction change. Consistent with the FLAG document a relative humidity cutoff value of 98 percent was used for these calculations.

Far-Field Results

The maximum predicted far-field visibility impacts for both direct project and cumulative scenarios are provided in Appendix E, Tables E.8.1 – E.8.4. Results summaries are provided in Tables E.10.9 - E.10.12. Predicted impacts are shown using both the FLAG and IMPROVE background visibility data for each of the CALPOST visibility processing methods. For each Class I and sensitive Class II area the maximum predicted change in dv and the estimated number of days per year that could potentially exceed 0.5 and 1.0 dv thresholds are provided. Tables that present all predicted impacts above the thresholds and the days when the impacts were predicted to occur are also provided in Appendix E (Tables E.8.5 – E.8.36) for each Class I and sensitive Class II area where the maximum predicted change in dv is estimated to potentially exceed 0.5 and 1.0 dv thresholds.

Mid-Field Results

The maximum predicted mid-field visibility impacts for both direct project and cumulative scenarios are provided in Appendix E, Tables E.9.1 – E.9.4. A summary of results by scenario is provided in Tables E.10.13 - E.10.16. Predicted impacts are shown using both the FLAG and IMPROVE background visibility data for both CALPOST processing methods. The maximum predicted visibility impacts (change in dv) at regional communities and the estimated number of days per year that could potentially exceed the 1.0 dv threshold are provided for each community location. Tables that present all predicted impacts above the threshold and the days when the impacts were predicted to occur are also provided in Appendix E (Tables E.9.5 – E.9.44) for each regional community location.

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ATTACHMENT

Figure 1

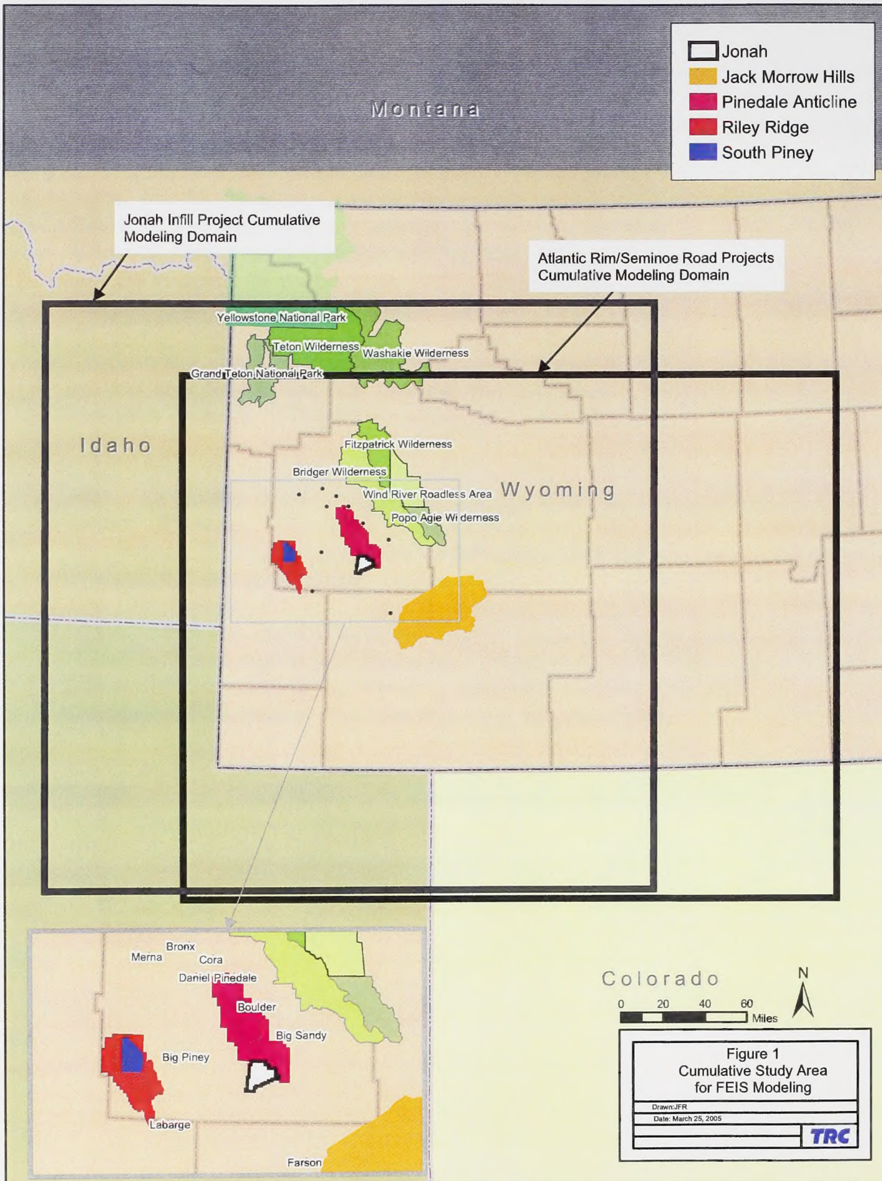

Figure 1
Cumulative Study Area
for FEIS Modeling

APPENDIX A

JUNE 2005 AIR QUALITY IMPACT ASSESSMENT PROTOCOL

JONAH INFILL DRILLING PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
IMPACT ANALYSIS SUPPLEMENT

AIR QUALITY IMPACT ASSESSMENT PROTOCOL
JONAH INFILL DRILLING PROJECT
DRAFT ENVIRONMENTAL IMPACT STATEMENT
IMPACT ANALYSIS SUPPLEMENT

PREFERRED ALTERNATIVE MITIGATION RUNS
AND
EARLY PROJECT DEVELOPMENT STAGE MODELING

Prepared for:

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TRC Project 35982

June 14, 2005

1.0 INTRODUCTION

TRC Environmental Corporation (TRC) has prepared this Air Quality Impact Assessment Protocol (Protocol) to identify the methodologies to be used to:

- quantify project-specific and cumulative air quality impacts from additional configurations of the proposed Jonah Infill Drilling Project (JIDP) Preferred Alternative which were not analyzed as part of the Draft Environmental Impact Statement (DEIS), and
- quantify project-specific and cumulative impacts from potential emissions which reflect early-project-development stage conditions existing in the region surrounding the Jonah Infill Drilling Project area (JIDPA).

The air quality modeling analyses defined herein have been requested by the Bureau of Land Management (BLM) to supplement the air quality analyses that were performed and presented for a range of project alternatives in the DEIS.

The additional analyses were deemed necessary by the BLM to:

- evaluate alternative potential mitigation strategies for the Preferred Alternative in an effort to identify possible project development requirements to reduce adverse air quality impacts, and
- identify maximum early-project-development stage regional emissions (i.e., drilling) which could reveal that regional impacts are more severe at this stage due to impacts from the development of other regional projects, which at present have not been adequately evaluated.

This Protocol presents the methodologies for these analyses prior to study initiation to ensure that the approach, input data, and computation methods are acceptable to the BLM and Wyoming Department of Environmental Quality-Air Quality Division (WDEQ-AQD), and that other interested parties have the opportunity to review the Protocol and provide input before the study is initiated.

The methodologies for these additional modeling analyses generally follow the approaches described in the October 2003, Jonah Infill Drilling Project *Air Quality Impact Assessment Protocol* and the November 2004, *Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement*, with any changes described herein. The new analyses include an assessment of pollutant concentrations in the JIDPA as well as the use of the CALMET and CALPUFF models to assess far-field and mid-field pollutant impacts within the cumulative study area, shown in Figure 1, attached. Far-field pollutant impacts will be assessed at the Prevention of Significant Deterioration (PSD) Class I areas (Bridger, Fitzpatrick, Teton, and Washakie Wilderness Areas and Grand Teton and Yellowstone National Parks), and at the sensitive Class II Popo Agie Wilderness Area and Wind River Roadless Area. Far-field analyses will include impact assessments of concentration, visibility, acid deposition, and lake acidity (at sensitive lakes within the Wilderness Areas). Mid-field visibility impact analyses will be performed at the Wyoming regional community locations of Big Piney, Big Sandy, Boulder, Bronx, Cora, Daniel, Farson, LaBarge, Merna, and Pinedale.

The remainder of this Protocol describes the methodologies for analysis of the Preferred Alternative additional configurations (Section 2.0) and the methodologies for analysis of early-project-development stage conditions in the JIDPA region (Section 3.0).

2.0 PREFERRED ALTERNATIVE MODELING ANALYSES

Additional configurations of the Preferred Alternative will be modeled to provide a representation of the range of impacts possible under this alternative (low and high emissions scenarios), and a representation of impacts which could occur using various mitigation methods in the JIDPA. Modeling analyses for these additional configurations will generally follow the methodologies described in the October 2003 Jonah Infill Drilling project *Air Quality Impact Assessment Protocol*, and will be directly comparable to the analyses conducted for the DEIS. The CALMET (Version 5.53) and CALPUFF (Version 5.711) models used in the DEIS analyses will again be used to estimate both project and cumulative pollutant impacts at far-field PSD Class I and sensitive Class II areas, at mid-field Wyoming regional community locations, and within the JIDPA.

Only project emissions will differ from those emissions modeled for the DEIS. Non-project cumulative emissions will be modeled as they were included in the DEIS and as described in detail in the *Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement*. These include sources newly permitted by the state agencies through June 30, 2003, reasonably foreseeable development (RFD), and reasonably foreseeable future actions (RFFA). Project and cumulative emissions of PM_{10}, $PM_{2.5}$, NO_X, and SO_2 emissions will be modeled. Revised VOC emissions and resulting revised ozone impacts will be included in the FEIS.

Non-project cumulative emissions will differ from those included in the early project development stage modeling described in Section 3.0 of this Protocol. Early project development stage modeling is proposed to include additional estimates of future compression requirements beyond those projected by regional operators and included in the DEIS analysis. The Preferred Alternative modeling analyses described in this section will include only the originally projected compression estimates to maintain consistency and comparability with the DEIS analysis.

The Preferred Alternative for the JIDP consists of the development of 3,100 new natural gas wells on approximately 8,316 acres of new surface disturbance in the JIDPA, and assumes approximately 50% directionally drilled wells and 50% straight hole wells. Modeling results presented in the DEIS for Alternative F with a well development rate (WDR) of 250 wells per year are assumed to represent the maximum impacts from the Preferred Alternative at peak year emissions. Peak year emissions were assumed to occur in year 2017, and included emissions from 2,850 wells in production and 250 wells under construction, consistent with the field configuration anticipated for year 2017 (the field at nearly full production and the last year of construction in the field). The modeling also assumed a 50/50 split between straight and directional wells (consistent with the Preferred Alternative) and a 50/50 split between EPA Tier 1 and Tier 2 emissions levels for drilling rig engines. The modeling included 80 percent flareless completions (20% of completions flared) and JIDPA compression emissions at maximum levels projected at the time of the DEIS. This analysis remains the "most likely" emissions/impact assessment for the Preferred Alternative based upon current knowledge and assuming voluntary commitments made by developers.

Sections 2.1 through 2.3 describe the model scenarios analyzed to provide a range of impacts possible under the Preferred Alternative. Each of these scenarios is based upon anticipated field characteristics in year 2017, the presumed year of peak emissions.

2.1 LOW EMISSIONS CONFIGURATION

The Preferred Alternative will be modeled using the methods and inputs described in Section 2.0, with the exception of drilling rig engine emissions. This analysis will include all drilling rig engine emissions at Tier 2 emission levels. Development rates of 250, 150, and 75 wells per year will be analyzed (i.e., 20, 12, and 6 drill rigs operating continuously). Modeling will be performed for both project-specific and cumulative emissions scenarios.

2.2 HIGH EMISSIONS (BASE CASE) CONFIGURATION

The Preferred Alternative will be modeled using the methods and inputs described in Section 2.0, with the exception of drilling rig engine emissions. This analysis will include 80% of drilling rig engine emissions at Tier 0 emission levels (AP-42 levels), and 20% of engine emissions at Tier 1 emission levels. Development rates of 250, 150, and 75 wells per year will be analyzed. Modeling will be performed for both project-specific and cumulative emissions scenarios.

2.3 MITIGATION ANALYSES

Modeling will be performed to determine project-specific impacts based on emission reduction percentages from the high emissions (base case) configuration at a 250 WDR. Specifically, project emissions for this modeling configuration will be reduced by 20, 40, 60 and 80 percent, and these four emissions scenarios will be modeled. These analyses are sensitivity modeling runs that can be used to identify minimum impacts levels from project-specific source emissions. Modeling will be performed for both project-specific and cumulative emissions scenarios.

2.4 MODEL RESULTS

CALPUFF output will be post-processed to derive: 1) concentrations for comparison to ambient standards, significance thresholds, and Class I and II Increments; 2) deposition rates for comparison to sulfur (S) and nitrogen (N) deposition thresholds and to calculate acid neutralizing capacity (ANC) for sensitive lakes; and 3) light extinction for comparison to visibility impact thresholds in Class I and sensitive Class II areas and at regional communities. The modeling results will be presented in a supplemental report, summarized in the JIDP Final EIS (FEIS), and presented in detail in the Final JIDP Air Quality Technical Support Document. These results will be directly comparable to all other alternatives analyzed and presented in the DEIS.

Modeled concentrations combined with appropriate ambient background pollutant concentrations will be calculated at each far-field PSD Class I and sensitive Class II area and within the JIDPA, and will be compared to Wyoming and National Ambient Air Quality Standards (WAAQS and NAAQS). Both JIDP-specific and cumulative source modeling results will be presented.

Modeled concentrations predicted from the JIDP alone in Federal PSD Class I areas will be compared to Class I significance levels (Class I SILs) and Class I Increments, and cumulative modeling results predicted within Federal PSD Class I areas will be compared to Class I Increments. Project and cumulative impacts predicted at far-field sensitive areas designated as PSD Class II areas will be compared to Class II Increments. The PSD demonstrations serve information purposes only and will not constitute a regulatory PSD Increment consumption analysis, which may be completed as necessary by WDEQ-AQD. The approach to this PSD screening analysis is consistent with the original October 2003 Jonah Infill Drilling Project *Air Quality Impact Assessment Protocol.*

Visibility impacts (measured as change in light extinction) will be calculated using two methods, FLAG and IMPROVE, which differ by the background data used to derive the percent change in visibility. CALPOST visibility processing method MVISBK=6 will be used in combination with the two sets of background visibility data and monthly relative humidity factors from the *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule*. These visibility processing methods are consistent with the October 2003 Protocol and the analyses presented in the DEIS. No updates to the 2002 baseline IMPROVE data set will be made. Changes in light extinction will be estimated from both JIDP emissions and cumulative source emissions at far-field PSD Class I and sensitive Class II areas, and at mid-field Class II Wyoming regional community locations. The 0.5 deciview change threshold value (for project source impacts) and the 1.0 deciview change threshold value (for cumulative source impacts) will be compared to far-field results modeled at PSD Class I and sensitive Class II areas. A summary of number of days greater than each of these threshold values will be provided in the text and, consistent with the DEIS, a summary of far-field cumulative impacts above both the 0.5 and 1.0 deciview change threshold values will be included in the appendices. Modeled results at

mid-field Class II regional locations from both project source and cumulative source impacts will be compared to the 1.0 deciview change threshold.

The total S deposition and N deposition at far-field PSD Class I and sensitive Class II areas from project emissions will be calculated and presented in kilograms/hectare/year (kg/ha/yr). These values will be compared to the 0.005 kg/ha/yr deposition analysis threshold (DAT) defined by the National Park Service (NPS) for total N and total S. Estimated total deposition fluxes of S and N from cumulative source impacts at the sensitive areas will be compared with levels of concern values of 5 and 3 kg/ha/yr for total S and N deposition fluxes, respectively. It is understood that the U.S. Department of Agriculture, Forest Service (USFS) no longer considers these levels of concern to be protective; however, in the absence of alternative Federal Land Manager-approved values, comparisons with these values will be made.

Predicted annual deposition fluxes of S and N at sensitive lake receptors from both JIDP and cumulative source emissions will be used to estimate the change in ANC. The predicted changes in ANC will be compared with the USFS's Level of Acceptable Change (LAC) thresholds of 10% for lakes with ANC values greater than 25 microequivalents per liter (μeq/l) and 1 μeq/l for lakes with background ANC values of 25 μeq/l and less.

3.0 EARLY PROJECT DEVELOPMENT STAGE MODELING

At the request of the BLM, an analysis of early-project-development stage air quality conditions in the vicinity of the JIDPA will be performed. What has been modeled and presented in the DEIS for the JIDP considers the "most likely case" maximum emissions scenario for the project, as described in greater detail in Section 2.0. However, when quantifying maximum cumulative impacts regionally, it is possible that peak regional impacts could occur prior to JIDP maximum emissions as a result of the development of other natural gas projects in the region. The BLM requested this analysis because it was considered probable that regional impacts would be greatest during the early stages of JIDP development due to accelerated development paces in nearby project areas. Unlike the Preferred Alternative modeling analyses (see Section 2.0), the modeling of the early project development stage will not be directly comparable to the results presented in the DEIS for reasons explained below.

The goal of this analysis is to quantify a maximum PM_{10}, $PM_{2.5}$, NO_X, and SO_2 emissions scenario that could potentially occur within the next few years in the air basin located southwest of the Bridger Wilderness Area, as a result of 1) increased well drilling and flaring activities among several active natural gas field developments, and 2) expanded compression requirements, beyond what was analyzed for the DEIS. To accomplish this goal, a study baseline year has been selected, for which emissions will be quantified and subtracted from a selected year which is representative of current conditions. This accounting will allow ambient background concentrations to be added to modeled impacts without "double-counting" existing background conditions. The emissions information available for well drilling and flaring activities and expanded compressions requirements up through a cut-off date of May 26, 2005 will be used in the analysis.

A study baseline year of 2002 is proposed for use based on the availability of background visibility data through 2002. Year 2006 is proposed as a representative year to analyze for a maximum emissions scenario. The 2006 inventory would include drilling and completion flaring activities occurring within the JIDPA, Pinedale Anticline Project (PAP), South Piney Project (SPP), Riley Ridge Project (RRP), and Jack Morrow Hills Project (JMHP) areas. The 2006

inventory would also include expanded compression estimates and a more recent emissions inventory of permitted sources for the area.

The modeling analysis will be performed generally following the methodologies described in the October 2003 Jonah Infill Drilling Project *Air Quality Impact Assessment Protocol*. Modeled emissions will include expanded compression emissions, reasonably foreseeable development (RFD) and reasonably foreseeable future actions (RFFA) that were determined for the DEIS, with the exception of the JIDP, PAP, SPP, RRP and JMHP emissions that were modeled for the DEIS. For these projects, emissions will be determined as the difference between maximum development emission rates calculated for 2006 minus the emissions determined to be included in background in baseline study year 2002. This approach results in an analysis of incremental emissions changes on both a project-specific and cumulative basis. Emissions differences determined for the JIDP, PAP, SPP, RRP, and JMHP will be modeled as point sources, spread within each project area. Emissions from expanded compression will be modeled as point sources located based on best available information. Details on the revised emissions inventories for this analysis are provided in Section 3.1 of this Protocol.

The CALMET and CALPUFF model versions that were used for the DEIS analysis will be used to estimate cumulative pollutant impacts at far-field PSD Class I and sensitive Class II areas, and at mid-field Wyoming regional community locations. However, the CALMET wind fields used for this analysis will differ from the wind fields used for the DEIS and Preferred Alternative modeling. The CALMET wind fields used for the current conditions modeling will be developed without the use of the "kinematic effects" CALMET switch setting option, which was used for all previous DEIS analyses. The change in wind field development will be made to correct a potential CALMET model anomaly, which could produce unrealistically high wind speeds in the wind field layers above the surface layer. Recent CALMET model peer review studies and model developer suggestions are the basis for this change. This change was not made for the Preferred Alternative modeling analyses to maintain consistency and comparability with the DEIS analyses.

3.1 EMISSIONS INVENTORIES

3.1.1 Permitted Source Emissions Inventory

As part of the JIDP DEIS, an inventory of permitted source emissions was developed using data obtained from the WDEQ-AQD, Colorado Department of Public Health and Environment/Air Pollution Control Division (CDPHE/APCD), Utah Department of Environmental Quality-Air Quality Division (UDEQ-AQD), and Idaho Division of Environment Quality (IDEQ). This source inventory included sources that had received permits through June 30, 2003. This inventory will be updated to include additional source emissions permitted through March 31, 2004. These additional source emissions will be obtained from the source inventory that was developed for the Atlantic Rim Natural Gas Project and the Seminoe Road Gas Development Project. The extent of the inventory domain for these projects is shown in Figure 1, attached.

3.1.2 Year 2006 Drilling and Flaring Emissions

Emissions for drilling activities and completion flaring have been developed for the JIDP, PAP, SPP, RRP, and JMHP based on a review of proposed well development rates and drilling activities for each project, from information available from the Wyoming Oil and Gas Conservation Commission (WOGCC) for drill rig "spud" activity, and from information provided by the BLM, Pinedale Field Office. Emissions will be determined for monthly drilling activities in order to capture seasonal variations in drilling. Table 1 provides a summary of the drilling rig and flare information that will be used for year 2006 modeling for all projects.

A WDR of 250 will be used for the JIDP (20 drill rigs [10 at 2,100 hp and 10 at 2,600 hp], and 3 completion flares operating continuously per month). An additional 3 drill rigs (all at 2,600 hp) and 1 completion flare will also be added to account for other operators expanded Jonah Field operations. For the JIDP it will be assumed that 50% of the wells will be directionally drilled and 50% of the wells will be straight hole, 80% of the wells will have flareless completions, and

there will be an 80%/20% combination of drilling engines with Tier 0 and Tier 1 emissions levels, respectively (Tier 0 emissions will be determined using EPA AP-42 emission factors).

For the PAP, the 2004 monthly well development rates obtained from the WOGCC, along with additional information provided by the BLM, Pinedale Field Office, will be used for 2006. Emissions are based on 6 year-round drilling rigs from Questar's year-round drilling project, 6 5,000 hp rigs based off of Questar's biggest rig to account for other operator's year-round drilling projects, and the remainder of the rigs based off of a representative 3,216 hp rig operating in the area. Emissions from Questar's 6 year-round drilling rigs assumes Tier 0 emissions for 3 rigs, Tier 1 emissions for 2 rigs, and a combination of Tier 0/Tier 1 emissions on 1 rig. These estimates come from emissions data provided by WDEQ/Questar. Emissions from the six 5,000 hp year-round drill rigs and the additional 3,216 hp drill rigs assume an 80%/20% Tier 0/Tier 1 emissions ratio. The analysis for the PAP also assumes 80% flareless completions.

The SPP project year 2006 drilling activity will be assumed to occur only during the summer months (May-Oct) with 3 drill rigs and 1 flare operating continuously for these months. The RRP will include 2 to 6 drill rigs and 1 flare operating throughout the year with an increase in activity in the summer months. The JMHP project will include a single operating rig and flare operating continuously throughout the year. Three 5,000 hp "wildcat" drilling rigs and 1 completion flare were added to the inventory to account for exploratory drilling in the BLM Pinedale Field Office area. It was assumed that this activity would only take place during the summer months (Jul-Aug). For the SPP, RRP, JMHP, and the "wildcat" rigs it will be assumed that 100% of the wells will be straight hole, 100% of the wells will be flared, and 100% of drilling engines will be Tier 0.

Table 1: Summary of Year 2006 Drilling Rigs Counts and Flaring Operations

Field	Months	Operating Drilling Rigs	Operating Flares
JIDP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3
JIDP – Expanded Jonah Field Operators	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
PAP[1]	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	25, 25, 25, 25, 25, 30, 35, 35, 35, 30, 25, 25	4, 4, 4, 4, 4, 5, 5, 5, 5, 5, 4, 4
SPP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 3, 3, 3, 3, 3, 3, 0, 0	0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 0, 0
RRP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	2, 2, 2, 2, 3, 3, 6, 6, 6, 3, 2, 2	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
JMHP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1
Pinedale Field Office – Wildcat Rigs	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 0, 0, 3, 3, 0, 0, 0, 0	0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0

[1] Drill rig estimates for PAP include 6 drilling rigs for the Questar year-round drilling program and 2 each for Anschutz, Ultra, and Shell.

3.1.3 Year 2002 Drilling and Flaring Emissions

Baseline study year emissions for drilling activities and completion flaring have been developed for the JIDP, PAP, SPP, RRP, and JMHP based on a review of monthly actual well development rates and drilling activities that occurred in the region during 2002. Year 2002 emissions are

quantified to determine the level of emissions that existed in background ambient air quality. Information from the WOGCC was used to determine 2002 development rates and drill rig counts. It will be assumed that during year 2002 all drilling engines would be at Tier 0 emissions levels. For all project areas, 100% straight hole drilling will be assumed. Completion flaring emissions will be determined from a review of actual well development rates and will assume 100% of the developed wells required flaring. A summary of the preliminary drilling rig and flare information that will be used for the year 2002 modeling is provided in Table 2.

Table 2: Summary of Year 2002 Drilling Rigs Counts and Flaring Operations

Field	Months	Operating Drilling Rigs	Operating Flares
JIDP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	6, 6, 6, 8, 5, 7, 4, 5, 8, 5, 4, 5	3, 3, 3, 4, 2, 3, 2, 2, 4, 2, 2, 2
PAP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	4, 3, 3, 1, 7, 3, 8, 5, 3, 3, 0, 1	2, 1, 1, 1, 3, 1, 4, 2, 1, 1, 0, 1
SPP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 0, 0, 0, 0, 2, 0, 2, 1	0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1
RRP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	0, 0, 0, 0, 1, 2, 2, 4, 2, 2, 1, 1	0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1
JMHP	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

3.1.4 Expanded Compression

The BLM, field operators, and other gas compression companies operating nearby were contacted to determine an estimate of expanded field compression requirements for the area. The expanded compression is in addition to the compression estimates that were obtained, from

field operators, state permits, and RFD, and modeled for the DEIS. A summary of the expanded compression estimates that have been obtained, and the field compression estimates included in the DEIS analyses are provided in Table 3. Emissions for expanded field compression were calculated based on best available data provided by BLM, operators, and information obtained from the WDEQ-AQD.

Table 3: Summary of Expanded Field Compression Estimates

Field	Permitted/RFD Compression Included in DEIS Analyses	Expanded Compression Included in DEIS Analyses	Expanded Compression Estimates Beyond that included in the DEIS
JIDP	13,269 hp (Falcon) 0 hp (Luman) 9,405 hp (Bird) 5,285 hp (Jonah)	7,336 hp (Falcon) 11,604 hp (Luman) 11,004 hp (Bird) 3,900 hp (Jonah)	2,888 hp (Falcon) 11,248 hp (Luman) 30,928 hp (Bird) 3,000 hp (Jonah)
PAP	12,094 hp (Paradise) 25,110 hp (Gobblers Knob, Mesa 1, Mesa 2)	7,336 hp (Paradise) 10,000 hp (Gobblers Knob)	9,624 hp (Paradise) 1,160 hp (Gobblers Knob)
SPP	48,500 hp	0 hp	0 hp
RRP	0 hp	0 hp	0 hp
JMHP	3,480 hp	0 hp	2,940 hp

3.2 MODEL RESULTS

CALPUFF output will be post-processed to derive: 1) concentrations for comparison to ambient standards, significance thresholds, and Class I and II Increments; 2) deposition rates for comparison to S and N deposition thresholds and to calculate ANC change for sensitive lakes; and 3) light extinction for comparison to visibility impact thresholds in Class I and sensitive Class II areas. The modeling results will be presented in a supplemental report for the DEIS, summarized in the JIDP FEIS (Chapter 3.0), and presented in detail in the Final JIDP Air Quality Technical Support Document. It is important to note that the results of this modeling analyses will not be directly comparable to the results presented in the DEIS or those presented for the Preferred Alternative (see Section 2.0) due to differences (emissions increases) in the cumulative emissions (non-project) inventories and the expanded compression estimates included in this analysis.

Modeled concentrations combined with appropriate ambient background pollutant concentrations will be calculated for each far-field PSD Class I and sensitive Class II area and will be compared to WAAQS and NAAQS.

Modeled concentrations predicted in Federal PSD Class I areas from project-specific sources alone will be compared to Class I SILs and Class I Increments, and cumulative impacts will be compared to Class I Increments. Impacts predicted at far-field sensitive areas designated as PSD Class II areas will be compared to Class II Increments. This demonstration will be for information purposes only and will not constitute a regulatory PSD Increment consumption analysis, which may be completed as necessary by WDEQ-AQD. The approach to this PSD screening analysis is consistent with the original October 2003 Jonah Infill Drilling Project *Air Quality Impact Assessment Protocol.*

Visibility impacts will be calculated using two methods, FLAG and IMPROVE, and using MVISBK=2 and MVISBK=6 visibility change estimate methods available in CALPOST. The MVISBK=6 method, which was used in all DEIS analyses, uses monthly relative humidity factors. The MVISBK=2 method uses hourly relative humidity data from the CALMET wind fields. Changes in light extinction will be estimated at far-field PSD Class I and sensitive Class II areas, and at mid-field Class II Wyoming regional community locations.

The 0.5 deciview change threshold value (for project source impacts) and the 1.0 deciview change threshold value (for cumulative source impacts) will be compared to far-field results modeled at PSD Class I and sensitive Class II areas. A summary of number of days greater than each of these threshold values will be provided in the text and, consistent with the DEIS, a summary of far-field cumulative impacts above both the 0.5 and 1.0 deciview change threshold values will be included in the appendices. Modeled results at mid-field Class II regional locations will be compared to a 1.0 deciview change thresholds for both project source and cumulative source impacts.

The total S deposition and N deposition at far-field PSD Class I and sensitive Class II areas from project emissions will be calculated and presented in kilograms/hectare/year (kg/ha/yr). These values will be compared to the 0.005 kg/ha/yr DAT defined by NPS for total N and total S. The total S deposition and N deposition impacts at far-field PSD Class I and sensitive Class II areas will be compared with levels of concern values of 5 and 3 kg/ha/yr for total S and N deposition fluxes, respectively. It is understood that the USFS no longer considers these levels of concern to be protective; however, in the absence of alternative Federal Land Manager-approved values, comparisons with these values will be made.

Predicted annual deposition fluxes of S and N at sensitive lake receptors will be used to estimate the change in ANC. The predicted changes in ANC will be compared with the USFS's Level of Acceptable Change (LAC) thresholds of either 10% for lakes with ANC values greater than 25 μeq/l, or 1 μeq/l for lakes with background ANC values of 25 μeq/l and less.

APPENDIX B

PREFERRED ALTERNATIVE EMISSIONS INVENTORY

The following is a list of the tables included within this appendix:

Table B.1.1
Jonah Infill Drilling Project
Summary of Maximum Field Wide Emissions Scenarios - Preferred Alternative
(Tons Per Year)

	High Emissions Cases			Low Emissions Cases			Mitigation Runs[7]			
	WDR250	WDR150	WDR75	WDR250	WDR150	WDR75	80%	60%	40%	20%
Production Emissions										
Wells[1]										
NO_x	129.2	133.8	137.2	129.2	133.8	137.2	103.4	77.5	51.7	25.8
SO_2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM_{10}	24.7	25.6	26.3	24.7	25.6	26.3	19.8	14.8	9.9	4.9
$PM_{2.5}$	24.7	25.6	26.3	24.7	25.6	26.3	19.8	14.8	9.9	4.9
Traffic[2]										
NO_x	23.9	24.7	25.4	23.9	24.7	25.4	19.1	14.3	9.6	4.8
SO_2	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.4	0.3	0.1
PM_{10}	652.0	674.9	692.0	652.0	674.9	692.0	521.6	391.2	260.8	130.4
$PM_{2.5}$	99.1	102.6	105.2	99.1	102.6	105.2	79.3	59.5	39.7	19.8
Compression[3]										
NO_x	211.0	211.0	211.0	211.0	211.0	211.0	168.8	126.6	84.4	42.2
SO_2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction Emissions										
Well Drilling[4]										
NO_x	2,421.6	1,453.0	726.5	786.2	471.7	235.9	1,937.3	1,453.0	968.6	484.3
SO_2	161.9	97.1	48.6	30.0	18.0	9.0	129.5	97.1	64.8	32.4
PM_{10}	464.9	278.9	139.5	28.8	17.3	8.6	371.9	278.9	186.0	93.0
$PM_{2.5}$	464.9	278.9	139.5	28.8	17.3	8.6	371.9	278.9	186.0	93.0
Traffic[5]										
NO_x	13.5	8.1	4.1	13.5	8.1	4.1	10.8	8.1	5.4	2.7
SO_2	0.4	0.2	0.1	0.4	0.2	0.1	0.3	0.2	0.2	0.1
PM_{10}	225.1	135.1	67.5	225.1	135.1	67.5	180.1	135.1	90.0	45.0
$PM_{2.5}$	34.5	20.7	10.3	34.5	20.7	10.3	27.6	20.7	13.8	6.9
Flaring[6]										
NO_x	406.9	271.3	135.6	406.9	271.3	135.6	325.5	244.1	162.8	81.4
SO_2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM_{10}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
$PM_{2.5}$	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total										
NO_x	3,206.1	2,101.8	1,239.7	1,570.7	1,120.6	749.1	2,564.9	1,923.7	1,282.5	641.2
SO_2	162.9	98.1	49.4	31.0	18.9	9.8	130.3	97.8	65.2	32.6
PM_{10}	1,366.8	1,114.5	925.3	930.7	852.8	794.5	1,093.4	820.1	546.7	273.4
$PM_{2.5}$	623.3	427.9	281.3	187.2	166.2	150.5	498.6	374.0	249.3	124.7

[1] Includes emissions from indirect heater, separator heater, and dehyrator heater.
[2] Includes emissions from all traffic associated with full field production. Emissions calculations assume 20 wells can be visited per day.
[3] Includes emissions from the following compressor stations: Bird Canyon, Luman, Falcon, Jonah and the Jonah Water Well.
[4] Includes emissions from drilling rigs operating continuously during the year.
Well Development Rates of 250, 150 and 75 assume drill rig counts of 20, 12, and 6, respectively.
High emissions cases assume 50% straight and 50% directional at an 80%/20% Tier 0/Tier 1 ratio.
Low Emissions cases assume 50% straight and 50% directional with 100% Tier 2 compliant rigs.
[5] Includes emissions from all traffic associated with 20, 12, and 6 drilling rigs in operation.
[6] Includes emissions from 3, 2, and 1 "completion/testing" flares operating continously during the year.
[7] Mitigation runs assume 80%, 60%, 40% and 20% of the high-emissions WDR250 case emissions, respectively.

Table B.1.2

Drilling Emissions AP-42 - Straight Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,100	0.42	19	24	2,702.63	5.93	25.96
NOx	0.031	2,100	0.42	19	24	12,542.17	27.50	120.47
SO_2	0.00205	2,100	0.42	19	24	829.40	1.82	7.97
VOC	0.0025	2,100	0.42	19	24	1,011.47	2.22	9.72
PM_{10}[4]	0.0022	2,100	0.42	19	24	890.09	1.95	8.55

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."

[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table B.1.3

Drilling Emissions Tier 1 - Straight Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,100	0.42	19	24	7,581.69	16.63	72.82
NOx	0.015	2,100	0.42	19	24	6,154.55	13.50	59.12
SO_2[4]	0.00035	2,100	0.42	19	24	139.77	0.31	1.34
VOC	0.0022	2,100	0.42	19	24	891.96	1.96	8.57
PM_{10}[5]	0.00088	2,100	0.42	19	24	356.79	0.78	3.43

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.

[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.

[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table B.1.4
Drilling Emissions Tier 2 - Straight Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 2
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0057	2,100	0.42	19	24	2,319.11	5.09	22.28
NOx	0.0090	2,100	0.42	19	24	3,657.05	8.02	35.13
SO_2[4]	0.00035	2,100	0.42	19	24	139.77	0.31	1.34
VOC	0.0004	2,100	0.42	19	24	148.87	0.33	1.43
PM_{10}[5]	0.00033	2,100	0.42	19	24	133.79	0.29	1.29

[1] Emission factor for Tier 2 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
NO_x and HC Emission Factors estimated based on Tables 3 and 5 of "Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling–Compression-Ignition," NR-009c, EPA, April 2004.
[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table B.1.5

Drilling Emissions AP-42 - Directional Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Jonah Infill Drilling Project**
Scenario: **Directional Drilling**
Activity: **Drilling**
Emissions: **Diesel Combustion Emissions from Drilling Engines - EPA AP-42**
Date: **6/30/2005**

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions Per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,600	0.42	23	24	4,050.56	7.34	32.14
NOx	0.031	2,600	0.42	23	24	18,797.53	34.05	149.15
SO_2	0.00205	2,600	0.42	23	24	1,243.06	2.25	9.86
VOC	0.0025	2,600	0.42	23	24	1,515.93	2.75	12.03
PM_{10}[4]	0.0022	2,600	0.42	23	24	1,334.02	2.42	10.59

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."

[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table B.1.6
Drilling Emissions Tier 1 - Directional Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Directional Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,600	0.42	23	24	11,363.04	20.59	90.16
NOx	0.015	2,600	0.42	23	24	9,224.12	16.71	73.19
SO_2[4]	0.00035	2,600	0.42	23	24	209.48	0.38	1.66
VOC	0.0022	2,600	0.42	23	24	1,336.83	2.42	10.61
PM_{10}[5]	0.00088	2,600	0.42	23	24	534.73	0.97	4.24

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on four engines, two at 800hp and two at 500hp.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table B.1.7
Drilling Emissions Tier 2 - Directional Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Directional Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 2
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0057	2,600	0.42	23	24	3,475.75	6.30	27.58
NOx	0.0090	2,600	0.42	23	24	5,481.00	9.93	43.49
SO_2[4]	0.00035	2,600	0.42	23	24	209.48	0.38	1.66
VOC	0.0004	2,600	0.42	23	24	223.12	0.40	1.77
PM_{10}[5]	0.00033	2,600	0.42	23	24	200.52	0.36	1.59

[1] Emission factor for Tier 2 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
NO_x and HC Emission Factors estimated based on Tables 3 and 5 of "Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling--Compression-Ignition," NR-009c, EPA, April 2004.
[2] Drilling engine horsepower based on four engines, two at 800hp and two at 500hp.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

APPENDIX C

PREFERRED ALTERNATIVE MODELING RESULTS

LIST OF TABLES

Modeled NO_2 Concentration Impacts

Modeled SO_2 Concentration Impacts

Modeled PM_{10} Concentration Impacts

Modeled $PM_{2.5}$ Concentration Impacts

Modeled Impacts Compared to Ambient Air Quality Standards

Modeled Nitrogen (N) and Sulfur (S) Deposition Impacts

Modeled Change in Acid Neutralizing Capacity

Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas

Modeled Visibility Impacts at Wyoming Regional Community Locations

Summary of Maximum Modeled Impacts

Table C.1.1 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Low Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.126	0.1[1]	2.5	3.4	3.53	100	100
		Fitzpatrick WA	0.00532	0.1[1]	2.5	3.4	3.41	100	100
		Grand Teton NP	0.00162	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0421	1.0	25.0	3.4	3.44	100	100
		Teton WA	0.000727	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.00102	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.025	1.0	25.0	3.4	3.43	100	100
		Yellowstone NP	0.000543	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.2 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Low Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.0872	0.1[1]	2.5	3.4	3.49	100	100
		Fitzpatrick WA	0.00379	0.1[1]	2.5	3.4	3.40	100	100
		Grand Teton NP	0.00114	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0298	1.0	25.0	3.4	3.43	100	100
		Teton WA	0.000508	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.000713	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0178	1.0	25.0	3.4	3.42	100	100
		Yellowstone NP	0.00038	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.3 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Low Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
NO_2	Annual	Bridger WA	0.0546	0.1[1]	2.5	3.4	3.45	100	100
		Fitzpatrick WA	0.00251	0.1[1]	2.5	3.4	3.40	100	100
		Grand Teton NP	0.000744	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0201	1.0	25.0	3.4	3.42	100	100
		Teton WA	0.000332	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.000465	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0116	1.0	25.0	3.4	3.41	100	100
		Yellowstone NP	0.000247	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.4 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources High Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.306	0.1[1]	2.5	3.4	3.71	100	100
		Fitzpatrick WA	0.0116	0.1[1]	2.5	3.4	3.41	100	100
		Grand Teton NP	0.00345	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0965	1.0	25.0	3.4	3.50	100	100
		Teton WA	0.00157	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.00209	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0581	1.0	25.0	3.4	3.46	100	100
		Yellowstone NP	0.00118	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.5 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources High Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.195	0.1[1]	2.5	3.4	3.60	100	100
		Fitzpatrick WA	0.00756	0.1[1]	2.5	3.4	3.41	100	100
		Grand Teton NP	0.00225	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.063	1.0	25.0	3.4	3.46	100	100
		Teton WA	0.00101	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.00135	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.038	1.0	25.0	3.4	3.44	100	100
		Yellowstone NP	0.000762	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.6 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources High Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.101	0.1[1]	2.5	3.4	3.50	100	100
		Fitzpatrick WA	0.0043	0.1[1]	2.5	3.4	3.40	100	100
		Grand Teton NP	0.0013	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.038	1.0	25.0	3.4	3.44	100	100
		Teton WA	0.00057	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.00076	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.021	1.0	25.0	3.4	3.42	100	100
		Yellowstone NP	0.00043	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.7 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Mitigation 20% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)
NO_2	Annual	Bridger WA	0.245	0.1[1]	2.5	3.4	3.65	100	100
		Fitzpatrick WA	0.00925	0.1[1]	2.5	3.4	3.41	100	100
		Grand Teton NP	0.00276	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0772	1.0	25.0	3.4	3.48	100	100
		Teton WA	0.00126	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.00167	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0464	1.0	25.0	3.4	3.45	100	100
		Yellowstone NP	0.000944	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register*/Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.8 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Mitigation 40% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.184	0.1[1]	2.5	3.4	3.58	100	100
		Fitzpatrick WA	0.00694	0.1[1]	2.5	3.4	3.41	100	100
		Grand Teton NP	0.00207	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0579	1.0	25.0	3.4	3.46	100	100
		Teton WA	0.000942	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.00126	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0348	1.0	25.0	3.4	3.43	100	100
		Yellowstone NP	0.000708	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.9 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Mitigation 60% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.123	0.1[1]	2.5	3.4	3.52	100	100
		Fitzpatrick WA	0.00462	0.1[1]	2.5	3.4	3.40	100	100
		Grand Teton NP	0.00138	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0386	1.0	25.0	3.4	3.44	100	100
		Teton WA	0.000628	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.000837	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0232	1.0	25.0	3.4	3.42	100	100
		Yellowstone NP	0.000472	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.10 Maximum Modeled NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources Mitigation 80% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
NO_2	Annual	Bridger WA	0.0613	0.1[1]	2.5	3.4	3.46	100	100
		Fitzpatrick WA	0.00231	0.1[1]	2.5	3.4	3.40	100	100
		Grand Teton NP	0.00069	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.0193	1.0	25.0	3.4	3.42	100	100
		Teton WA	0.000314	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.000419	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0116	1.0	25.0	3.4	3.41	100	100
		Yellowstone NP	0.000236	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.1.11 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Low Emissions WDR250) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
NO_2	Annual	Bridger WA	0.237	2.5	3.4	3.64	100	100
		Fitzpatrick WA	0.017	2.5	3.4	3.42	100	100
		Grand Teton NP	0.030	2.5	3.4	3.43	100	100
		Popo Agie WA	0.068	25.0	3.4	3.47	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.049	25.0	3.4	3.45	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.12 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Low Emissions WDR150) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
NO_2	Annual	Bridger WA	0.199	2.5	3.4	3.60	100	100
		Fitzpatrick WA	0.015	2.5	3.4	3.41	100	100
		Grand Teton NP	0.030	2.5	3.4	3.43	100	100
		Popo Agie WA	0.056	25.0	3.4	3.46	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.042	25.0	3.4	3.44	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.13 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Low Emissions WDR075) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.167	2.5	3.4	3.57	100	100
		Fitzpatrick WA	0.014	2.5	3.4	3.41	100	100
		Grand Teton NP	0.029	2.5	3.4	3.43	100	100
		Popo Agie WA	0.046	25.0	3.4	3.45	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.036	25.0	3.4	3.44	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.14 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (High Emissions WDR250) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.418	2.5	3.4	3.82	100	100
		Fitzpatrick WA	0.023	2.5	3.4	3.42	100	100
		Grand Teton NP	0.032	2.5	3.4	3.43	100	100
		Popo Agie WA	0.120	25.0	3.4	3.52	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.082	25.0	3.4	3.48	100	100
		Yellowstone NP	0.004	2.5	3.4	3.40	100	100

Table C.1.15 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (High Emissions WDR150) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.307	2.5	3.4	3.71	100	100
		Fitzpatrick WA	0.019	2.5	3.4	3.42	100	100
		Grand Teton NP	0.031	2.5	3.4	3.43	100	100
		Popo Agie WA	0.087	25.0	3.4	3.49	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.062	25.0	3.4	3.46	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.16 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (High Emissions WDR075) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.213	2.5	3.4	3.61	100	100
		Fitzpatrick WA	0.015	2.5	3.4	3.42	100	100
		Grand Teton NP	0.030	2.5	3.4	3.43	100	100
		Popo Agie WA	0.062	25.0	3.4	3.46	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.045	25.0	3.4	3.45	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.17 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Mitigation 20% Emissions Reduction WDR250) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
NO_2	Annual	Bridger WA	0.356	2.5	3.4	3.76	100	100
		Fitzpatrick WA	0.020	2.5	3.4	3.42	100	100
		Grand Teton NP	0.031	2.5	3.4	3.43	100	100
		Popo Agie WA	0.101	25.0	3.4	3.50	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.071	25.0	3.4	3.47	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.18 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Mitigation 40% Emissions Reduction WDR250) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)	(µg/m^3)
NO_2	Annual	Bridger WA	0.295	2.5	3.4	3.70	100	100
		Fitzpatrick WA	0.018	2.5	3.4	3.42	100	100
		Grand Teton NP	0.031	2.5	3.4	3.43	100	100
		Popo Agie WA	0.081	25.0	3.4	3.48	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.059	25.0	3.4	3.46	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.19 Maximum Modeled Cumulative NO_2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Mitigation 60% Emissions Reduction WDR250) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.234	2.5	3.4	3.63	100	100
		Fitzpatrick WA	0.016	2.5	3.4	3.42	100	100
		Grand Teton NP	0.030	2.5	3.4	3.43	100	100
		Popo Agie WA	0.063	25.0	3.4	3.46	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.048	25.0	3.4	3.45	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.1.20 Maximum Modeled Cumulative NO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative (Mitigation 80% Emissions Reduction WDR250) and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.174	2.5	3.4	3.57	100	100
		Fitzpatrick WA	0.014	2.5	3.4	3.41	100	100
		Grand Teton NP	0.029	2.5	3.4	3.43	100	100
		Popo Agie WA	0.045	25.0	3.4	3.44	100	100
		Teton WA	0.007	2.5	3.4	3.41	100	100
		Washakie WA	0.010	2.5	3.4	3.41	100	100
		Wind River RA	0.036	25.0	3.4	3.44	100	100
		Yellowstone NP	0.003	2.5	3.4	3.40	100	100

Table C.2.1 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.004	0.1[1]	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.001	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.001	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.079	0.2[1]	5	43.0	43.1	260	365
		Fitzpatrick WA	0.006	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.003	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.014	5.0	91	43.0	43.0	260	365
		Teton WA	0.001	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.002	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.011	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.001	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.254	1.0[1]	25	132.0	132.3	1,300	1,300
		Fitzpatrick WA	0.021	1.0[1]	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.009	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.090	25.0	512	132.0	132.1	1,300	1,300
		Teton WA	0.008	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.007	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.041	25.0	512	132.0	132.0	1,300	1,300
		Yellowstone NP	0.003	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register*/Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.2 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS (µg/m3)
SO_2	Annual	Bridger WA	0.002	0.1[1]	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.001	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.001	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.050	0.2[1]	5	43.0	43.0	260	365
		Fitzpatrick WA	0.004	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.002	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.009	5.0	91	43.0	43.0	260	365
		Teton WA	0.001	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.001	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.007	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.001	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.157	1.0[1]	25	132.0	132.2	1,300	1,300
		Fitzpatrick WA	0.014	1.0[1]	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.005	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.060	25.0	512	132.0	132.1	1,300	1,300
		Teton WA	0.005	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.004	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.026	25.0	512	132.0	132.0	1,300	1,300
		Yellowstone NP	0.002	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.3 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.001	0.1[1]	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.000	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.000	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.024	0.2[1]	5	43.0	43.0	260	365
		Fitzpatrick WA	0.002	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.001	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.005	5.0	91	43.0	43.0	260	365
		Teton WA	0.000	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.001	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.004	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.000	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.081	1.0[1]	25	132.0	132.1	1,300	1,300
		Fitzpatrick WA	0.007	1.0[1]	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.003	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.029	25.0	512	132.0	132.0	1,300	1,300
		Teton WA	0.003	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.003	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.012	25.0	512	132.0	132.0	1,300	1,300
		Yellowstone NP	0.001	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.4 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.019	0.1[1]	2	9.0	9.02	60	80
		Fitzpatrick WA	0.001	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.006	1.0	20	9.0	9.01	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.004	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.382	0.2[1]	5	43.0	43.4	260	365
		Fitzpatrick WA	0.028	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.012	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.068	5.0	91	43.0	43.1	260	365
		Teton WA	0.007	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.011	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.055	5.0	91	43.0	43.1	260	365
		Yellowstone NP	0.005	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	1.232	1.0[1]	25	132.0	133.2	1,300	1,300
		Fitzpatrick WA	0.102	1.0[1]	25	132.0	132.1	1,300	1,300
		Grand Teton NP	0.041	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.437	25.0	512	132.0	132.4	1,300	1,300
		Teton WA	0.038	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.031	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.196	25.0	512	132.0	132.2	1,300	1,300
		Yellowstone NP	0.015	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.5 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
SO_2	Annual	Bridger WA	0.012	0.1[1]	2	9.0	9.01	60	80
		Fitzpatrick WA	0.001	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.004	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.002	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.237	0.2[1]	5	43.0	43.2	260	365
		Fitzpatrick WA	0.018	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.008	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.045	5.0	91	43.0	43.0	260	365
		Teton WA	0.004	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.006	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.034	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.003	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.750	1.0[1]	25	132.0	132.8	1,300	1,300
		Fitzpatrick WA	0.065	1.0[1]	25	132.0	132.1	1,300	1,300
		Grand Teton NP	0.025	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.292	25.0	512	132.0	132.3	1,300	1,300
		Teton WA	0.023	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.020	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.124	25.0	512	132.0	132.1	1,300	1,300
		Yellowstone NP	0.009	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.6 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
SO_2	Annual	Bridger WA	0.005	0.1[1]	2	9.0	9.01	60	80
		Fitzpatrick WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.002	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.001	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.113	0.2[1]	5	43.0	43.1	260	365
		Fitzpatrick WA	0.009	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.004	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.027	5.0	91	43.0	43.0	260	365
		Teton WA	0.002	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.003	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.019	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.001	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.382	1.0[1]	25	132.0	132.4	1,300	1,300
		Fitzpatrick WA	0.033	1.0[1]	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.013	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.142	25.0	512	132.0	132.1	1,300	1,300
		Teton WA	0.012	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.011	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.059	25.0	512	132.0	132.1	1,300	1,300
		Yellowstone NP	0.005	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.7 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.015	0.1[1]	2	9.0	9.02	60	80
		Fitzpatrick WA	0.001	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.005	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.003	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.306	0.2[1]	5	43.0	43.3	260	365
		Fitzpatrick WA	0.022	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.010	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.055	5.0	91	43.0	43.1	260	365
		Teton WA	0.006	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.009	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.044	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.004	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.985	1.0[1]	25	132.0	133.0	1,300	1,300
		Fitzpatrick WA	0.082	1.0[1]	25	132.0	132.1	1,300	1,300
		Grand Teton NP	0.033	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.350	25.0	512	132.0	132.3	1,300	1,300
		Teton WA	0.031	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.024	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.156	25.0	512	132.0	132.2	1,300	1,300
		Yellowstone NP	0.012	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.8 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.012	0.1[1]	2	9.0	9.01	60	80
		Fitzpatrick WA	0.001	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.004	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.002	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.229	0.2[1]	5	43.0	43.2	260	365
		Fitzpatrick WA	0.017	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.007	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.041	5.0	91	43.0	43.0	260	365
		Teton WA	0.004	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.006	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.033	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.003	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.739	1.0[1]	25	132.0	132.7	1,300	1,300
		Fitzpatrick WA	0.061	1.0[1]	25	132.0	132.1	1,300	1,300
		Grand Teton NP	0.025	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.262	25.0	512	132.0	132.3	1,300	1,300
		Teton WA	0.023	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.018	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.117	25.0	512	132.0	132.1	1,300	1,300
		Yellowstone NP	0.009	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register*/Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.9 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
SO_2	Annual	Bridger WA	0.008	0.1[1]	2	9.0	9.01	60	80
		Fitzpatrick WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.002	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.002	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.153	0.2[1]	5	43.0	43.2	260	365
		Fitzpatrick WA	0.011	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.005	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.027	5.0	91	43.0	43.0	260	365
		Teton WA	0.003	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.004	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.022	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.002	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.493	1.0[1]	25	132.0	132.5	1,300	1,300
		Fitzpatrick WA	0.041	1.0[1]	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.017	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.175	25.0	512	132.0	132.2	1,300	1,300
		Teton WA	0.015	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.012	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.078	25.0	512	132.0	132.1	1,300	1,300
		Yellowstone NP	0.006	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.10 Maximum Modeled SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.004	0.1[1]	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.000	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.001	1.0	20	9.0	9.00	60	80
		Teton WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.000	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.001	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.000	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.076	0.2[1]	5	43.0	43.1	260	365
		Fitzpatrick WA	0.006	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.002	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.014	5.0	91	43.0	43.0	260	365
		Teton WA	0.001	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.002	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.011	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.001	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.246	1.0[1]	25	132.0	132.2	1,300	1,300
		Fitzpatrick WA	0.020	1.0[1]	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.008	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.087	25.0	512	132.0	132.1	1,300	1,300
		Teton WA	0.008	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.006	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.039	25.0	512	132.0	132.0	1,300	1,300
		Yellowstone NP	0.003	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.2.11 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.000	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.086	5	43.0	43.1	260	365
		Fitzpatrick WA	0.007	5	43.0	43.0	260	365
		Grand Teton NP	0.038	5	43.0	43.0	260	365
		Popo Agie WA	0.016	91	43.0	43.0	260	365
		Teton WA	0.012	5	43.0	43.0	260	365
		Washakie WA	0.008	5	43.0	43.0	260	365
		Wind River RA	0.015	91	43.0	43.0	260	365
		Yellowstone NP	0.013	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.269	25	132.0	132.3	1,300	1,300
		Fitzpatrick WA	0.023	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.201	25	132.0	132.2	1,300	1,300
		Popo Agie WA	0.091	512	132.0	132.1	1,300	1,300
		Teton WA	0.037	25	132.0	132.0	1,300	1,300
		Washakie WA	0.022	25	132.0	132.0	1,300	1,300
		Wind River RA	0.118	512	132.0	132.1	1,300	1,300
		Yellowstone NP	0.075	25	132.0	132.1	1,300	1,300

Table C.2.12 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.000	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.06	5	43.0	43.1	260	365
		Fitzpatrick WA	0.01	5	43.0	43.0	260	365
		Grand Teton NP	0.04	5	43.0	43.0	260	365
		Popo Agie WA	0.01	91	43.0	43.0	260	365
		Teton WA	0.01	5	43.0	43.0	260	365
		Washakie WA	0.01	5	43.0	43.0	260	365
		Wind River RA	0.01	91	43.0	43.0	260	365
		Yellowstone NP	0.01	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.17	25	132.0	132.2	1,300	1,300
		Fitzpatrick WA	0.02	25	132.0	132.0	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.2	1,300	1,300
		Popo Agie WA	0.06	512	132.0	132.1	1,300	1,300
		Teton WA	0.04	25	132.0	132.0	1,300	1,300
		Washakie WA	0.02	25	132.0	132.0	1,300	1,300
		Wind River RA	0.11	512	132.0	132.1	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.1	1,300	1,300

Table C.2.13 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
SO_2	Annual	Bridger WA	0.000	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.04	5	43.0	43.04	260	365
		Fitzpatrick WA	0.01	5	43.0	43.01	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.01	91	43.0	43.01	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.01	91	43.0	43.01	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	0.17	25	132.0	132.17	1,300	1,300
		Fitzpatrick WA	0.02	25	132.0	132.02	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.03	512	132.0	132.03	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.11	512	132.0	132.11	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.2.14 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.014	2	9.0	9.01	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.002	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.001	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.39	5	43.0	43.39	260	365
		Fitzpatrick WA	0.02	5	43.0	43.02	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.07	91	43.0	43.07	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.05	91	43.0	43.05	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	1.25	25	132.0	133.25	1,300	1,300
		Fitzpatrick WA	0.09	25	132.0	132.09	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.44	512	132.0	132.44	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.20	512	132.0	132.20	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.2.15 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
SO_2	Annual	Bridger WA	0.006	2	9.0	9.01	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.24	5	43.0	43.24	260	365
		Fitzpatrick WA	0.02	5	43.0	43.02	260	365
		Grand Teton NP	0.01	5	43.0	43.01	260	365
		Popo Agie WA	0.04	91	43.0	43.04	260	365
		Teton WA	0.00	5	43.0	43.00	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.03	91	43.0	43.03	260	365
		Yellowstone NP	0.00	5	43.0	43.00	260	365
SO_2	3-hr	Bridger WA	0.75	25	132.0	132.75	1,300	1,300
		Fitzpatrick WA	0.06	25	132.0	132.06	1,300	1,300
		Grand Teton NP	0.03	25	132.0	132.03	1,300	1,300
		Popo Agie WA	0.29	512	132.0	132.29	1,300	1,300
		Teton WA	0.02	25	132.0	132.02	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.12	512	132.0	132.12	1,300	1,300
		Yellowstone NP	0.01	25	132.0	132.01	1,300	1,300

Table C.2.16 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.000	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.12	5	43.0	43.12	260	365
		Fitzpatrick WA	0.01	5	43.0	43.01	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.03	91	43.0	43.03	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.01	91	43.0	43.01	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	0.39	25	132.0	132.39	1,300	1,300
		Fitzpatrick WA	0.03	25	132.0	132.03	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.14	512	132.0	132.14	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.11	512	132.0	132.11	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.2.17 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.010	2	9.0	9.01	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.001	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.31	5	43.0	43.31	260	365
		Fitzpatrick WA	0.02	5	43.0	43.02	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.06	91	43.0	43.06	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.04	91	43.0	43.04	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	1.00	25	132.0	133.00	1,300	1,300
		Fitzpatrick WA	0.07	25	132.0	132.07	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.35	512	132.0	132.35	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.16	512	132.0	132.16	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.2.18 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.006	2	9.0	9.01	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.24	5	43.0	43.24	260	365
		Fitzpatrick WA	0.01	5	43.0	43.01	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.04	91	43.0	43.04	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.02	91	43.0	43.02	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	0.75	25	132.0	132.75	1,300	1,300
		Fitzpatrick WA	0.05	25	132.0	132.05	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.26	512	132.0	132.26	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.13	512	132.0	132.13	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.2.19 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.002	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.16	5	43.0	43.16	260	365
		Fitzpatrick WA	0.01	5	43.0	43.01	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.03	91	43.0	43.03	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.02	91	43.0	43.02	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	0.51	25	132.0	132.51	1,300	1,300
		Fitzpatrick WA	0.03	25	132.0	132.03	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.18	512	132.0	132.18	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.13	512	132.0	132.13	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.2.20 Maximum Modeled Cumulative SO2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.000	2	9.0	9.00	60	80
		Fitzpatrick WA	0.000	2	9.0	9.00	60	80
		Grand Teton NP	0.007	2	9.0	9.01	60	80
		Popo Agie WA	0.000	20	9.0	9.00	60	80
		Teton WA	0.001	2	9.0	9.00	60	80
		Washakie WA	0.000	2	9.0	9.00	60	80
		Wind River RA	0.000	20	9.0	9.00	60	80
		Yellowstone NP	0.001	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.08	5	43.0	43.08	260	365
		Fitzpatrick WA	0.01	5	43.0	43.01	260	365
		Grand Teton NP	0.04	5	43.0	43.04	260	365
		Popo Agie WA	0.02	91	43.0	43.02	260	365
		Teton WA	0.01	5	43.0	43.01	260	365
		Washakie WA	0.01	5	43.0	43.01	260	365
		Wind River RA	0.01	91	43.0	43.01	260	365
		Yellowstone NP	0.01	5	43.0	43.01	260	365
SO_2	3-hr	Bridger WA	0.26	25	132.0	132.26	1,300	1,300
		Fitzpatrick WA	0.02	25	132.0	132.02	1,300	1,300
		Grand Teton NP	0.20	25	132.0	132.20	1,300	1,300
		Popo Agie WA	0.09	512	132.0	132.09	1,300	1,300
		Teton WA	0.04	25	132.0	132.04	1,300	1,300
		Washakie WA	0.02	25	132.0	132.02	1,300	1,300
		Wind River RA	0.12	512	132.0	132.12	1,300	1,300
		Yellowstone NP	0.07	25	132.0	132.07	1,300	1,300

Table C.3.1 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250

Pollutant	Averagin g Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.058	0.2[1]	4	16.0	16.06	50	50
		Fitzpatrick WA	0.006	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.003	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.016	1.0	17	16.0	16.02	50	50
		Teton WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.012	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24- hr	Bridger WA	1.502	0.3[1]	8	33.0	34.50	150	150
		Fitzpatrick WA	0.168	0.3[1]	8	33.0	33.17	150	150
		Grand Teton NP	0.088	0.3[1]	8	33.0	33.09	150	150
		Popo Agie WA	0.237	5.0	30	33.0	33.24	150	150
		Teton WA	0.040	0.3[1]	8	33.0	33.04	150	150
		Washakie WA	0.072	0.3[1]	8	33.0	33.07	150	150
		Wind River RA	0.182	5.0	30	33.0	33.18	150	150
		Yellowstone NP	0.041	0.3[1]	8	33.0	33.04	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.2 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.047	0.2[1]	4	16.0	16.05	50	50
		Fitzpatrick WA	0.005	0.2[1]	4	16.0	16.00	50	50
		Grand Teton NP	0.002	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.013	1.0	17	16.0	16.01	50	50
		Teton WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.010	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	1.195	0.3[1]	8	33.0	34.19	150	150
		Fitzpatrick WA	0.128	0.3[1]	8	33.0	33.13	150	150
		Grand Teton NP	0.067	0.3[1]	8	33.0	33.07	150	150
		Popo Agie WA	0.201	5.0	30	33.0	33.20	150	150
		Teton WA	0.031	0.3[1]	8	33.0	33.03	150	150
		Washakie WA	0.055	0.3[1]	8	33.0	33.05	150	150
		Wind River RA	0.157	5.0	30	33.0	33.16	150	150
		Yellowstone NP	0.031	0.3[1]	8	33.0	33.03	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.3 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.038	0.2[1]	4	16.0	16.04	50	50
		Fitzpatrick WA	0.004	0.2[1]	4	16.0	16.00	50	50
		Grand Teton NP	0.001	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.010	1.0	17	16.0	16.01	50	50
		Teton WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.008	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	0.937	0.3[1]	8	33.0	33.94	150	150
		Fitzpatrick WA	0.097	0.3[1]	8	33.0	33.10	150	150
		Grand Teton NP	0.048	0.3[1]	8	33.0	33.05	150	150
		Popo Agie WA	0.171	5.0	30	33.0	33.17	150	150
		Teton WA	0.027	0.3[1]	8	33.0	33.03	150	150
		Washakie WA	0.040	0.3[1]	8	33.0	33.04	150	150
		Wind River RA	0.137	5.0	30	33.0	33.14	150	150
		Yellowstone NP	0.022	0.3[1]	8	33.0	33.02	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.4 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (µg/m³)	Applicable PSD Significance Level (µg/m³)	Applicable PSD Increment (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	WAAQS (µg/m³)	NAAQS (µg/m³)
PM_{10}	Annual	Bridger WA	0.117	0.2[1]	4	16.0	16.12	50	50
		Fitzpatrick WA	0.012	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.005	0.2[1]	4	16.0	16.01	50	50
		Popo Agie WA	0.034	1.0	17	16.0	16.03	50	50
		Teton WA	0.003	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.004	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.023	1.0	17	16.0	16.02	50	50
		Yellowstone NP	0.002	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	3.165	0.3[1]	8	33.0	36.17	150	150
		Fitzpatrick WA	0.396	0.3[1]	8	33.0	33.40	150	150
		Grand Teton NP	0.182	0.3[1]	8	33.0	33.18	150	150
		Popo Agie WA	0.414	5.0	30	33.0	33.41	150	150
		Teton WA	0.081	0.3[1]	8	33.0	33.08	150	150
		Washakie WA	0.145	0.3[1]	8	33.0	33.15	150	150
		Wind River RA	0.319	5.0	30	33.0	33.32	150	150
		Yellowstone NP	0.081	0.3[1]	8	33.0	33.08	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.5 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.082	0.2[1]	4	16.0	16.08	50	50
		Fitzpatrick WA	0.008	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.004	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.023	1.0	17	16.0	16.02	50	50
		Teton WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.003	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.016	1.0	17	16.0	16.02	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	2.199	0.3[1]	8	33.0	35.20	150	150
		Fitzpatrick WA	0.264	0.3[1]	8	33.0	33.26	150	150
		Grand Teton NP	0.125	0.3[1]	8	33.0	33.12	150	150
		Popo Agie WA	0.296	5.0	30	33.0	33.30	150	150
		Teton WA	0.055	0.3[1]	8	33.0	33.05	150	150
		Washakie WA	0.100	0.3[1]	8	33.0	33.10	150	150
		Wind River RA	0.215	5.0	30	33.0	33.21	150	150
		Yellowstone NP	0.055	0.3[1]	8	33.0	33.05	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.6 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.054	0.2[1]	4	16.0	16.05	50	50
		Fitzpatrick WA	0.005	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.002	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.015	1.0	17	16.0	16.02	50	50
		Teton WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.011	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	1.393	0.3[1]	8	33.0	34.39	150	150
		Fitzpatrick WA	0.161	0.3[1]	8	33.0	33.16	150	150
		Grand Teton NP	0.077	0.3[1]	8	33.0	33.08	150	150
		Popo Agie WA	0.211	5.0	30	33.0	33.21	150	150
		Teton WA	0.034	0.3[1]	8	33.0	33.03	150	150
		Washakie WA	0.061	0.3[1]	8	33.0	33.06	150	150
		Wind River RA	0.156	5.0	30	33.0	33.16	150	150
		Yellowstone NP	0.033	0.3[1]	8	33.0	33.03	150	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.7 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.094	0.2[1]	4	16.0	16.09	50	50
		Fitzpatrick WA	0.009	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.004	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.027	1.0	17	16.0	16.03	50	50
		Teton WA	0.003	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.003	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.018	1.0	17	16.0	16.02	50	50
		Yellowstone NP	0.002	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	2.532	0.3[1]	8	33.0	35.53	150	150
		Fitzpatrick WA	0.317	0.3[1]	8	33.0	33.32	150	150
		Grand Teton NP	0.146	0.3[1]	8	33.0	33.15	150	150
		Popo Agie WA	0.331	5.0	30	33.0	33.33	150	150
		Teton WA	0.065	0.3[1]	8	33.0	33.06	150	150
		Washakie WA	0.116	0.3[1]	8	33.0	33.12	150	150
		Wind River RA	0.255	5.0	30	33.0	33.26	150	150
		Yellowstone NP	0.065	0.3[1]	8	33.0	33.06	150	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.8 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.070	0.2[1]	4	16.0	16.07	50	50
		Fitzpatrick WA	0.007	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.003	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.020	1.0	17	16.0	16.02	50	50
		Teton WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.014	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24 hr	Bridger WA	1.899	0.3[1]	8	33.0	34.90	150	150
		Fitzpatrick WA	0.238	0.3[1]	8	33.0	33.24	150	150
		Grand Teton NP	0.109	0.3[1]	8	33.0	33.11	150	150
		Popo Agie WA	0.248	5.0	30	33.0	33.25	150	150
		Teton WA	0.049	0.3[1]	8	33.0	33.05	150	150
		Washakie WA	0.087	0.3[1]	8	33.0	33.09	150	150
		Wind River RA	0.191	5.0	30	33.0	33.19	150	150
		Yellowstone NP	0.049	0.3[1]	8	33.0	33.05	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.9 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.047	0.2[1]	4	16.0	16.05	50	50
		Fitzpatrick WA	0.005	0.2[1]	4	16.0	16.00	50	50
		Grand Teton NP	0.002	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.013	1.0	17	16.0	16.01	50	50
		Teton WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.009	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.001	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	1.266	0.3[1]	8	33.0	34.27	150	150
		Fitzpatrick WA	0.158	0.3[1]	8	33.0	33.16	150	150
		Grand Teton NP	0.073	0.3[1]	8	33.0	33.07	150	150
		Popo Agie WA	0.165	5.0	30	33.0	33.17	150	150
		Teton WA	0.032	0.3[1]	8	33.0	33.03	150	150
		Washakie WA	0.058	0.3[1]	8	33.0	33.06	150	150
		Wind River RA	0.128	5.0	30	33.0	33.13	150	150
		Yellowstone NP	0.032	0.3[1]	8	33.0	33.03	150	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.10 Maximum Modeled PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Significance Level	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.023	0.2[1]	4	16.0	16.02	50	50
		Fitzpatrick WA	0.002	0.2[1]	4	16.0	16.00	50	50
		Grand Teton NP	0.001	0.2[1]	4	16.0	16.00	50	50
		Popo Agie WA	0.007	1.0	17	16.0	16.01	50	50
		Teton WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.001	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.005	1.0	17	16.0	16.00	50	50
		Yellowstone NP	0.000	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	0.633	0.3[1]	8	33.0	33.63	150	150
		Fitzpatrick WA	0.079	0.3[1]	8	33.0	33.08	150	150
		Grand Teton NP	0.036	0.3[1]	8	33.0	33.04	150	150
		Popo Agie WA	0.083	5.0	30	33.0	33.08	150	150
		Teton WA	0.016	0.3[1]	8	33.0	33.02	150	150
		Washakie WA	0.029	0.3[1]	8	33.0	33.03	150	150
		Wind River RA	0.064	5.0	30	33.0	33.06	150	150
		Yellowstone NP	0.016	0.3[1]	8	33.0	33.02	150	150

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table C.3.11 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.075	4	16.0	16.08	50	50
		Fitzpatrick WA	0.011	4	16.0	16.01	50	50
		Grand Teton NP	0.015	4	16.0	16.01	50	50
		Popo Agie WA	0.022	17	16.0	16.02	50	50
		Teton WA	0.006	4	16.0	16.01	50	50
		Washakie WA	0.005	4	16.0	16.00	50	50
		Wind River RA	0.020	17	16.0	16.02	50	50
		Yellowstone NP	0.005	4	16.0	16.00	50	50
PM_{10}	24- hr	Bridger WA	1.661	8	33.0	34.66	150	150
		Fitzpatrick WA	0.195	8	33.0	33.20	150	150
		Grand Teton NP	0.136	8	33.0	33.14	150	150
		Popo Agie WA	0.293	30	33.0	33.29	150	150
		Teton WA	0.077	8	33.0	33.08	150	150
		Washakie WA	0.087	8	33.0	33.09	150	150
		Wind River RA	0.287	30	33.0	33.29	150	150
		Yellowstone NP	0.062	8	33.0	33.06	150	150

Table C.3.12 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.064	4	16.0	16.06	50	50
		Fitzpatrick WA	0.010	4	16.0	16.01	50	50
		Grand Teton NP	0.014	4	16.0	16.01	50	50
		Popo Agie WA	0.019	17	16.0	16.02	50	50
		Teton WA	0.006	4	16.0	16.01	50	50
		Washakie WA	0.004	4	16.0	16.00	50	50
		Wind River RA	0.017	17	16.0	16.02	50	50
		Yellowstone NP	0.005	4	16.0	16.00	50	50
PM_{10}	24 - hr	Bridger WA	1.354	8	33.0	34.35	150	150
		Fitzpatrick WA	0.172	8	33.0	33.17	150	150
		Grand Teton NP	0.133	8	33.0	33.13	150	150
		Popo Agie WA	0.256	30	33.0	33.26	150	150
		Teton WA	0.067	8	33.0	33.07	150	150
		Washakie WA	0.070	8	33.0	33.07	150	150
		Wind River RA	0.264	30	33.0	33.26	150	150
		Yellowstone NP	0.056	8	33.0	33.06	150	150

Table C.3.13 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.055	4	16.0	16.06	50	50
		Fitzpatrick WA	0.009	4	16.0	16.01	50	50
		Grand Teton NP	0.014	4	16.0	16.01	50	50
		Popo Agie WA	0.017	17	16.0	16.02	50	50
		Teton WA	0.006	4	16.0	16.01	50	50
		Washakie WA	0.004	4	16.0	16.00	50	50
		Wind River RA	0.016	17	16.0	16.02	50	50
		Yellowstone NP	0.004	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	1.096	8	33.0	34.10	150	150
		Fitzpatrick WA	0.161	8	33.0	33.16	150	150
		Grand Teton NP	0.129	8	33.0	33.13	150	150
		Popo Agie WA	0.226	30	33.0	33.23	150	150
		Teton WA	0.060	8	33.0	33.06	150	150
		Washakie WA	0.059	8	33.0	33.06	150	150
		Wind River RA	0.245	30	33.0	33.24	150	150
		Yellowstone NP	0.052	8	33.0	33.05	150	150

Table C.3.14 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
PM_{10}	Annual	Bridger WA	0.134	4	16.0	16.13	50	50
		Fitzpatrick WA	0.017	4	16.0	16.02	50	50
		Grand Teton NP	0.018	4	16.0	16.02	50	50
		Popo Agie WA	0.040	17	16.0	16.04	50	50
		Teton WA	0.008	4	16.0	16.01	50	50
		Washakie WA	0.007	4	16.0	16.01	50	50
		Wind River RA	0.031	17	16.0	16.03	50	50
		Yellowstone NP	0.006	4	16.0	16.01	50	50
PM_{10}	24-hr	Bridger WA	3.319	8	33.0	36.32	150	150
		Fitzpatrick WA	0.406	8	33.0	33.41	150	150
		Grand Teton NP	0.227	8	33.0	33.23	150	150
		Popo Agie WA	0.462	30	33.0	33.46	150	150
		Teton WA	0.120	8	33.0	33.12	150	150
		Washakie WA	0.160	8	33.0	33.16	150	150
		Wind River RA	0.371	30	33.0	33.37	150	150
		Yellowstone NP	0.098	8	33.0	33.10	150	150

Table C.3.15 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.099	4	16.0	16.10	50	50
		Fitzpatrick WA	0.013	4	16.0	16.01	50	50
		Grand Teton NP	0.016	4	16.0	16.02	50	50
		Popo Agie WA	0.029	17	16.0	16.03	50	50
		Teton WA	0.007	4	16.0	16.01	50	50
		Washakie WA	0.006	4	16.0	16.01	50	50
		Wind River RA	0.024	17	16.0	16.02	50	50
		Yellowstone NP	0.005	4	16.0	16.01	50	50
PM_{10}	24-hr	Bridger WA	2.353	8	33.0	35.35	150	150
		Fitzpatrick WA	0.273	8	33.0	33.27	150	150
		Grand Teton NP	0.170	8	33.0	33.17	150	150
		Popo Agie WA	0.351	30	33.0	33.35	150	150
		Teton WA	0.093	8	33.0	33.09	150	150
		Washakie WA	0.115	8	33.0	33.11	150	150
		Wind River RA	0.316	30	33.0	33.32	150	150
		Yellowstone NP	0.071	8	33.0	33.07	150	150

Table C.3.16 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
PM_{10}	Annual	Bridger WA	0.071	4	16.0	16.07	50	50
		Fitzpatrick WA	0.010	4	16.0	16.01	50	50
		Grand Teton NP	0.015	4	16.0	16.01	50	50
		Popo Agie WA	0.021	17	16.0	16.02	50	50
		Teton WA	0.006	4	16.0	16.01	50	50
		Washakie WA	0.005	4	16.0	16.00	50	50
		Wind River RA	0.019	17	16.0	16.02	50	50
		Yellowstone NP	0.005	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	1.547	8	33.0	34.55	150	150
		Fitzpatrick WA	0.179	8	33.0	33.18	150	150
		Grand Teton NP	0.130	8	33.0	33.13	150	150
		Popo Agie WA	0.266	30	33.0	33.27	150	150
		Teton WA	0.073	8	33.0	33.07	150	150
		Washakie WA	0.077	8	33.0	33.08	150	150
		Wind River RA	0.270	30	33.0	33.27	150	150
		Yellowstone NP	0.058	8	33.0	33.06	150	150

Table C.3.17 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.111	4	16.0	16.11	50	50
		Fitzpatrick WA	0.014	4	16.0	16.01	50	50
		Grand Teton NP	0.016	4	16.0	16.02	50	50
		Popo Agie WA	0.033	17	16.0	16.03	50	50
		Teton WA	0.007	4	16.0	16.01	50	50
		Washakie WA	0.006	4	16.0	16.01	50	50
		Wind River RA	0.026	17	16.0	16.03	50	50
		Yellowstone NP	0.005	4	16.0	16.01	50	50
PM_{10}	24-hr	Bridger WA	2.686	8	33.0	35.69	150	150
		Fitzpatrick WA	0.326	8	33.0	33.33	150	150
		Grand Teton NP	0.190	8	33.0	33.19	150	150
		Popo Agie WA	0.379	30	33.0	33.38	150	150
		Teton WA	0.104	8	33.0	33.10	150	150
		Washakie WA	0.131	8	33.0	33.13	150	150
		Wind River RA	0.335	30	33.0	33.34	150	150
		Yellowstone NP	0.082	8	33.0	33.08	150	150

Table C.3.18 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
PM_{10}	Annual	Bridger WA	0.087	4	16.0	16.09	50	50
		Fitzpatrick WA	0.012	4	16.0	16.01	50	50
		Grand Teton NP	0.015	4	16.0	16.02	50	50
		Popo Agie WA	0.026	17	16.0	16.03	50	50
		Teton WA	0.007	4	16.0	16.01	50	50
		Washakie WA	0.005	4	16.0	16.01	50	50
		Wind River RA	0.022	17	16.0	16.02	50	50
		Yellowstone NP	0.005	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	2.053	8	33.0	35.05	150	150
		Fitzpatrick WA	0.247	8	33.0	33.25	150	150
		Grand Teton NP	0.154	8	33.0	33.15	150	150
		Popo Agie WA	0.297	30	33.0	33.30	150	150
		Teton WA	0.088	8	33.0	33.09	150	150
		Washakie WA	0.103	8	33.0	33.10	150	150
		Wind River RA	0.300	30	33.0	33.30	150	150
		Yellowstone NP	0.067	8	33.0	33.07	150	150

Table C.3.19 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.064	4	16.0	16.06	50	50
		Fitzpatrick WA	0.010	4	16.0	16.01	50	50
		Grand Teton NP	0.014	4	16.0	16.01	50	50
		Popo Agie WA	0.020	17	16.0	16.02	50	50
		Teton WA	0.006	4	16.0	16.01	50	50
		Washakie WA	0.004	4	16.0	16.00	50	50
		Wind River RA	0.017	17	16.0	16.02	50	50
		Yellowstone NP	0.005	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	1.420	8	33.0	34.42	150	150
		Fitzpatrick WA	0.173	8	33.0	33.17	150	150
		Grand Teton NP	0.129	8	33.0	33.13	150	150
		Popo Agie WA	0.222	30	33.0	33.22	150	150
		Teton WA	0.072	8	33.0	33.07	150	150
		Washakie WA	0.074	8	33.0	33.07	150	150
		Wind River RA	0.265	30	33.0	33.26	150	150
		Yellowstone NP	0.058	8	33.0	33.06	150	150

Table C.3.20 Maximum Modeled Cumulative PM10 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
PM_{10}	Annual	Bridger WA	0.041	4	16.0	16.04	50	50
		Fitzpatrick WA	0.007	4	16.0	16.01	50	50
		Grand Teton NP	0.013	4	16.0	16.01	50	50
		Popo Agie WA	0.013	17	16.0	16.01	50	50
		Teton WA	0.006	4	16.0	16.01	50	50
		Washakie WA	0.004	4	16.0	16.00	50	50
		Wind River RA	0.012	17	16.0	16.01	50	50
		Yellowstone NP	0.004	4	16.0	16.00	50	50
PM_{10}	24-hr	Bridger WA	0.787	8	33.0	33.79	150	150
		Fitzpatrick WA	0.151	8	33.0	33.15	150	150
		Grand Teton NP	0.125	8	33.0	33.13	150	150
		Popo Agie WA	0.180	30	33.0	33.18	150	150
		Teton WA	0.056	8	33.0	33.06	150	150
		Washakie WA	0.054	8	33.0	33.05	150	150
		Wind River RA	0.230	30	33.0	33.23	150	150
		Yellowstone NP	0.050	8	33.0	33.05	150	150

Table C.4.1 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.058	5.0	5.06	15	15
		Fitzpatrick WA	0.006	5.0	5.01	15	15
		Grand Teton NP	0.003	5.0	5.00	15	15
		Popo Agie WA	0.016	5.0	5.02	15	15
		Teton WA	0.002	5.0	5.00	15	15
		Washakie WA	0.002	5.0	5.00	15	15
		Wind River RA	0.012	5.0	5.01	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.502	13.0	14.50	65	65
		Fitzpatrick WA	0.168	13.0	13.17	65	65
		Grand Teton NP	0.088	13.0	13.09	65	65
		Popo Agie WA	0.237	13.0	13.24	65	65
		Teton WA	0.040	13.0	13.04	65	65
		Washakie WA	0.072	13.0	13.07	65	65
		Wind River RA	0.182	13.0	13.18	65	65
		Yellowstone NP	0.041	13.0	13.04	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.2 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Background Concentration	Total Concentration	WAAQS[1]	NAAQS
			(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
$PM_{2.5}$	Annual	Bridger WA	0.047	5.0	5.05	15	15
		Fitzpatrick WA	0.005	5.0	5.00	15	15
		Grand Teton NP	0.002	5.0	5.00	15	15
		Popo Agie WA	0.013	5.0	5.01	15	15
		Teton WA	0.001	5.0	5.00	15	15
		Washakie WA	0.001	5.0	5.00	15	15
		Wind River RA	0.010	5.0	5.01	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.195	13.0	14.19	65	65
		Fitzpatrick WA	0.128	13.0	13.13	65	65
		Grand Teton NP	0.067	13.0	13.07	65	65
		Popo Agie WA	0.201	13.0	13.20	65	65
		Teton WA	0.031	13.0	13.03	65	65
		Washakie WA	0.055	13.0	13.05	65	65
		Wind River RA	0.157	13.0	13.16	65	65
		Yellowstone NP	0.031	13.0	13.03	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.3 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.038	5.0	5.04	15	15
		Fitzpatrick WA	0.004	5.0	5.00	15	15
		Grand Teton NP	0.001	5.0	5.00	15	15
		Popo Agie WA	0.010	5.0	5.01	15	15
		Teton WA	0.001	5.0	5.00	15	15
		Washakie WA	0.001	5.0	5.00	15	15
		Wind River RA	0.008	5.0	5.01	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	0.937	13.0	13.94	65	65
		Fitzpatrick WA	0.097	13.0	13.10	65	65
		Grand Teton NP	0.048	13.0	13.05	65	65
		Popo Agie WA	0.171	13.0	13.17	65	65
		Teton WA	0.027	13.0	13.03	65	65
		Washakie WA	0.040	13.0	13.04	65	65
		Wind River RA	0.137	13.0	13.14	65	65
		Yellowstone NP	0.022	13.0	13.02	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.4 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.117	5.0	5.12	15	15
		Fitzpatrick WA	0.012	5.0	5.01	15	15
		Grand Teton NP	0.005	5.0	5.01	15	15
		Popo Agie WA	0.034	5.0	5.03	15	15
		Teton WA	0.003	5.0	5.00	15	15
		Washakie WA	0.004	5.0	5.00	15	15
		Wind River RA	0.023	5.0	5.02	15	15
		Yellowstone NP	0.002	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	3.165	13.0	16.17	65	65
		Fitzpatrick WA	0.396	13.0	13.40	65	65
		Grand Teton NP	0.182	13.0	13.18	65	65
		Popo Agie WA	0.414	13.0	13.41	65	65
		Teton WA	0.081	13.0	13.08	65	65
		Washakie WA	0.145	13.0	13.15	65	65
		Wind River RA	0.319	13.0	13.32	65	65
		Yellowstone NP	0.081	13.0	13.08	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.5 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.082	5.0	5.08	15	15
		Fitzpatrick WA	0.008	5.0	5.01	15	15
		Grand Teton NP	0.004	5.0	5.00	15	15
		Popo Agie WA	0.023	5.0	5.02	15	15
		Teton WA	0.002	5.0	5.00	15	15
		Washakie WA	0.003	5.0	5.00	15	15
		Wind River RA	0.016	5.0	5.02	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	2.199	13.0	15.20	65	65
		Fitzpatrick WA	0.264	13.0	13.26	65	65
		Grand Teton NP	0.125	13.0	13.12	65	65
		Popo Agie WA	0.296	13.0	13.30	65	65
		Teton WA	0.055	13.0	13.05	65	65
		Washakie WA	0.100	13.0	13.10	65	65
		Wind River RA	0.215	13.0	13.21	65	65
		Yellowstone NP	0.055	13.0	13.05	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.6 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.054	5.0	5.05	15	15
		Fitzpatrick WA	0.005	5.0	5.01	15	15
		Grand Teton NP	0.002	5.0	5.00	15	15
		Popo Agie WA	0.015	5.0	5.02	15	15
		Teton WA	0.001	5.0	5.00	15	15
		Washakie WA	0.002	5.0	5.00	15	15
		Wind River RA	0.011	5.0	5.01	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.393	13.0	14.39	65	65
		Fitzpatrick WA	0.161	13.0	13.16	65	65
		Grand Teton NP	0.077	13.0	13.08	65	65
		Popo Agie WA	0.211	13.0	13.21	65	65
		Teton WA	0.034	13.0	13.03	65	65
		Washakie WA	0.061	13.0	13.06	65	65
		Wind River RA	0.156	13.0	13.16	65	65
		Yellowstone NP	0.033	13.0	13.03	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.7 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	WAAQS[1] (µg/m³)	NAAQS (µg/m³)
$PM_{2.5}$	Annual	Bridger WA	0.094	5.0	5.09	15	15
		Fitzpatrick WA	0.009	5.0	5.01	15	15
		Grand Teton NP	0.004	5.0	5.00	15	15
		Popo Agie WA	0.027	5.0	5.03	15	15
		Teton WA	0.003	5.0	5.00	15	15
		Washakie WA	0.003	5.0	5.00	15	15
		Wind River RA	0.018	5.0	5.02	15	15
		Yellowstone NP	0.002	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	2.532	13.0	15.53	65	65
		Fitzpatrick WA	0.317	13.0	13.32	65	65
		Grand Teton NP	0.146	13.0	13.15	65	65
		Popo Agie WA	0.331	13.0	13.33	65	65
		Teton WA	0.065	13.0	13.06	65	65
		Washakie WA	0.116	13.0	13.12	65	65
		Wind River RA	0.255	13.0	13.26	65	65
		Yellowstone NP	0.065	13.0	13.06	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.8 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.070	5.0	5.07	15	15
		Fitzpatrick WA	0.007	5.0	5.01	15	15
		Grand Teton NP	0.003	5.0	5.00	15	15
		Popo Agie WA	0.020	5.0	5.02	15	15
		Teton WA	0.002	5.0	5.00	15	15
		Washakie WA	0.002	5.0	5.00	15	15
		Wind River RA	0.014	5.0	5.01	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.899	13.0	14.90	65	65
		Fitzpatrick WA	0.238	13.0	13.24	65	65
		Grand Teton NP	0.109	13.0	13.11	65	65
		Popo Agie WA	0.248	13.0	13.25	65	65
		Teton WA	0.049	13.0	13.05	65	65
		Washakie WA	0.087	13.0	13.09	65	65
		Wind River RA	0.191	13.0	13.19	65	65
		Yellowstone NP	0.049	13.0	13.05	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.9 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact	Background Concentration	Total Concentration	WAAQS[1]	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.047	5.0	5.05	15	15
		Fitzpatrick WA	0.005	5.0	5.00	15	15
		Grand Teton NP	0.002	5.0	5.00	15	15
		Popo Agie WA	0.013	5.0	5.01	15	15
		Teton WA	0.001	5.0	5.00	15	15
		Washakie WA	0.002	5.0	5.00	15	15
		Wind River RA	0.009	5.0	5.01	15	15
		Yellowstone NP	0.001	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.266	13.0	14.27	65	65
		Fitzpatrick WA	0.158	13.0	13.16	65	65
		Grand Teton NP	0.073	13.0	13.07	65	65
		Popo Agie WA	0.165	13.0	13.17	65	65
		Teton WA	0.032	13.0	13.03	65	65
		Washakie WA	0.058	13.0	13.06	65	65
		Wind River RA	0.128	13.0	13.13	65	65
		Yellowstone NP	0.032	13.0	13.03	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.10 Maximum Modeled PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.023	5.0	5.02	15	15
		Fitzpatrick WA	0.002	5.0	5.00	15	15
		Grand Teton NP	0.001	5.0	5.00	15	15
		Popo Agie WA	0.007	5.0	5.01	15	15
		Teton WA	0.001	5.0	5.00	15	15
		Washakie WA	0.001	5.0	5.00	15	15
		Wind River RA	0.005	5.0	5.00	15	15
		Yellowstone NP	0.000	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	0.633	13.0	13.63	65	65
		Fitzpatrick WA	0.079	13.0	13.08	65	65
		Grand Teton NP	0.036	13.0	13.04	65	65
		Popo Agie WA	0.083	13.0	13.08	65	65
		Teton WA	0.016	13.0	13.02	65	65
		Washakie WA	0.029	13.0	13.03	65	65
		Wind River RA	0.064	13.0	13.06	65	65
		Yellowstone NP	0.016	13.0	13.02	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.11 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.076	5.0	5.08	15	15
		Fitzpatrick WA	0.012	5.0	5.01	15	15
		Grand Teton NP	0.015	5.0	5.02	15	15
		Popo Agie WA	0.025	5.0	5.03	15	15
		Teton WA	0.007	5.0	5.01	15	15
		Washakie WA	0.005	5.0	5.01	15	15
		Wind River RA	0.021	5.0	5.02	15	15
		Yellowstone NP	0.005	5.0	5.01	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.659	13.0	14.66	65	65
		Fitzpatrick WA	0.195	13.0	13.20	65	65
		Grand Teton NP	0.134	13.0	13.13	65	65
		Popo Agie WA	0.291	13.0	13.29	65	65
		Teton WA	0.073	13.0	13.07	65	65
		Washakie WA	0.087	13.0	13.09	65	65
		Wind River RA	0.278	13.0	13.28	65	65
		Yellowstone NP	0.060	13.0	13.06	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.12 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Background Concentration	Total Concentration	WAAQS[1]	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
$PM_{2.5}$	Annual	Bridger WA	0.065	5.0	5.07	15	15
		Fitzpatrick WA	0.010	5.0	5.01	15	15
		Grand Teton NP	0.015	5.0	5.01	15	15
		Popo Agie WA	0.021	5.0	5.02	15	15
		Teton WA	0.006	5.0	5.01	15	15
		Washakie WA	0.005	5.0	5.00	15	15
		Wind River RA	0.019	5.0	5.02	15	15
		Yellowstone NP	0.005	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.351	13.0	14.35	65	65
		Fitzpatrick WA	0.166	13.0	13.17	65	65
		Grand Teton NP	0.125	13.0	13.13	65	65
		Popo Agie WA	0.254	13.0	13.25	65	65
		Teton WA	0.063	13.0	13.06	65	65
		Washakie WA	0.070	13.0	13.07	65	65
		Wind River RA	0.255	13.0	13.26	65	65
		Yellowstone NP	0.055	13.0	13.06	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.13 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.056	5.0	5.06	15	15
		Fitzpatrick WA	0.009	5.0	5.01	15	15
		Grand Teton NP	0.014	5.0	5.01	15	15
		Popo Agie WA	0.019	5.0	5.02	15	15
		Teton WA	0.006	5.0	5.01	15	15
		Washakie WA	0.004	5.0	5.00	15	15
		Wind River RA	0.017	5.0	5.02	15	15
		Yellowstone NP	0.005	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.094	13.0	14.09	65	65
		Fitzpatrick WA	0.155	13.0	13.16	65	65
		Grand Teton NP	0.122	13.0	13.12	65	65
		Popo Agie WA	0.224	13.0	13.22	65	65
		Teton WA	0.056	13.0	13.06	65	65
		Washakie WA	0.059	13.0	13.06	65	65
		Wind River RA	0.236	13.0	13.24	65	65
		Yellowstone NP	0.051	13.0	13.05	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.14 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.135	5.0	5.14	15	15
		Fitzpatrick WA	0.017	5.0	5.02	15	15
		Grand Teton NP	0.018	5.0	5.02	15	15
		Popo Agie WA	0.042	5.0	5.04	15	15
		Teton WA	0.008	5.0	5.01	15	15
		Washakie WA	0.007	5.0	5.01	15	15
		Wind River RA	0.032	5.0	5.03	15	15
		Yellowstone NP	0.006	5.0	5.01	15	15
$PM_{2.5}$	24-hr	Bridger WA	3.317	13.0	16.32	65	65
		Fitzpatrick WA	0.406	13.0	13.41	65	65
		Grand Teton NP	0.229	13.0	13.23	65	65
		Popo Agie WA	0.460	13.0	13.46	65	65
		Teton WA	0.117	13.0	13.12	65	65
		Washakie WA	0.160	13.0	13.16	65	65
		Wind River RA	0.361	13.0	13.36	65	65
		Yellowstone NP	0.100	13.0	13.10	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.15 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Background Concentration	Total Concentration	WAAQS[1]	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.100	5.0	5.10	15	15
		Fitzpatrick WA	0.014	5.0	5.01	15	15
		Grand Teton NP	0.016	5.0	5.02	15	15
		Popo Agie WA	0.032	5.0	5.03	15	15
		Teton WA	0.007	5.0	5.01	15	15
		Washakie WA	0.006	5.0	5.01	15	15
		Wind River RA	0.025	5.0	5.03	15	15
		Yellowstone NP	0.005	5.0	5.01	15	15
$PM_{2.5}$	24-hr	Bridger WA	2.351	13.0	15.35	65	65
		Fitzpatrick WA	0.273	13.0	13.27	65	65
		Grand Teton NP	0.171	13.0	13.17	65	65
		Popo Agie WA	0.349	13.0	13.35	65	65
		Teton WA	0.089	13.0	13.09	65	65
		Washakie WA	0.115	13.0	13.11	65	65
		Wind River RA	0.306	13.0	13.31	65	65
		Yellowstone NP	0.074	13.0	13.07	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.16 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Background Concentration	Total Concentration	WAAQS[1]	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.072	5.0	5.07	15	15
		Fitzpatrick WA	0.011	5.0	5.01	15	15
		Grand Teton NP	0.015	5.0	5.02	15	15
		Popo Agie WA	0.024	5.0	5.02	15	15
		Teton WA	0.007	5.0	5.01	15	15
		Washakie WA	0.005	5.0	5.00	15	15
		Wind River RA	0.020	5.0	5.02	15	15
		Yellowstone NP	0.005	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.545	13.0	14.54	65	65
		Fitzpatrick WA	0.179	13.0	13.18	65	65
		Grand Teton NP	0.123	13.0	13.12	65	65
		Popo Agie WA	0.264	13.0	13.26	65	65
		Teton WA	0.069	13.0	13.07	65	65
		Washakie WA	0.077	13.0	13.08	65	65
		Wind River RA	0.261	13.0	13.26	65	65
		Yellowstone NP	0.057	13.0	13.06	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.17 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.112	5.0	5.11	15	15
		Fitzpatrick WA	0.015	5.0	5.02	15	15
		Grand Teton NP	0.017	5.0	5.02	15	15
		Popo Agie WA	0.036	5.0	5.04	15	15
		Teton WA	0.008	5.0	5.01	15	15
		Washakie WA	0.006	5.0	5.01	15	15
		Wind River RA	0.027	5.0	5.03	15	15
		Yellowstone NP	0.006	5.0	5.01	15	15
$PM_{2.5}$	24-hr	Bridger WA	2.684	13.0	15.68	65	65
		Fitzpatrick WA	0.326	13.0	13.33	65	65
		Grand Teton NP	0.192	13.0	13.19	65	65
		Popo Agie WA	0.377	13.0	13.38	65	65
		Teton WA	0.100	13.0	13.10	65	65
		Washakie WA	0.131	13.0	13.13	65	65
		Wind River RA	0.326	13.0	13.33	65	65
		Yellowstone NP	0.084	13.0	13.08	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.18 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Background Concentration	Total Concentration	WAAQS[1]	NAAQS
			(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
$PM_{2.5}$	Annual	Bridger WA	0.088	5.0	5.09	15	15
		Fitzpatrick WA	0.013	5.0	5.01	15	15
		Grand Teton NP	0.016	5.0	5.02	15	15
		Popo Agie WA	0.029	5.0	5.03	15	15
		Teton WA	0.007	5.0	5.01	15	15
		Washakie WA	0.006	5.0	5.01	15	15
		Wind River RA	0.023	5.0	5.02	15	15
		Yellowstone NP	0.005	5.0	5.01	15	15
$PM_{2.5}$	24-hr	Bridger WA	2.051	13.0	15.05	65	65
		Fitzpatrick WA	0.247	13.0	13.25	65	65
		Grand Teton NP	0.156	13.0	13.16	65	65
		Popo Agie WA	0.295	13.0	13.29	65	65
		Teton WA	0.084	13.0	13.08	65	65
		Washakie WA	0.103	13.0	13.10	65	65
		Wind River RA	0.291	13.0	13.29	65	65
		Yellowstone NP	0.068	13.0	13.07	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.19 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	WAAQS[1] (μg/m³)	NAAQS (μg/m³)
$PM_{2.5}$	Annual	Bridger WA	0.065	5.0	5.06	15	15
		Fitzpatrick WA	0.010	5.0	5.01	15	15
		Grand Teton NP	0.015	5.0	5.01	15	15
		Popo Agie WA	0.022	5.0	5.02	15	15
		Teton WA	0.007	5.0	5.01	15	15
		Washakie WA	0.005	5.0	5.00	15	15
		Wind River RA	0.018	5.0	5.02	15	15
		Yellowstone NP	0.005	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	1.418	13.0	14.42	65	65
		Fitzpatrick WA	0.169	13.0	13.17	65	65
		Grand Teton NP	0.121	13.0	13.12	65	65
		Popo Agie WA	0.216	13.0	13.22	65	65
		Teton WA	0.068	13.0	13.07	65	65
		Washakie WA	0.074	13.0	13.07	65	65
		Wind River RA	0.256	13.0	13.26	65	65
		Yellowstone NP	0.057	13.0	13.06	65	65

[1] Standard not yet enforced in Wyoming.

Table C.4.20 Maximum Modeled Cumulative PM2.5 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	WAAQS[1] (μg/m³)	NAAQS (μg/m³)
$PM_{2.5}$	Annual	Bridger WA	0.042	5.0	5.04	15	15
		Fitzpatrick WA	0.008	5.0	5.01	15	15
		Grand Teton NP	0.014	5.0	5.01	15	15
		Popo Agie WA	0.015	5.0	5.02	15	15
		Teton WA	0.006	5.0	5.01	15	15
		Washakie WA	0.004	5.0	5.00	15	15
		Wind River RA	0.014	5.0	5.01	15	15
		Yellowstone NP	0.004	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	0.785	13.0	13.79	65	65
		Fitzpatrick WA	0.145	13.0	13.14	65	65
		Grand Teton NP	0.118	13.0	13.12	65	65
		Popo Agie WA	0.170	13.0	13.17	65	65
		Teton WA	0.052	13.0	13.05	65	65
		Washakie WA	0.054	13.0	13.05	65	65
		Wind River RA	0.221	13.0	13.22	65	65
		Yellowstone NP	0.050	13.0	13.05	65	65

[1] Standard not yet enforced in Wyoming.

Table C.5.1 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Low Emissions WDR250 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	13.0	3.4	16.4	100	100
SO_2	3 Hour	20.3	132	152.3	1,300	1,300
	24-Hour	4.1	43	47.1	260	365
	Annual	0.4	9	9.4	60	80
PM_{10}	24-Hour	113.0	33	146.0	150	150
	Annual	15.8	16	31.8	50	50
$PM_{2.5}$	24-Hour	21.3	13	34.3	65[1]	65
	Annual	2.9	5	7.9	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.2 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Low Emissions WDR150 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	11.5	3.4	14.9	100	100
SO_2	3 Hour	15.4	132	147.4	1,300	1,300
	24-Hour	3.8	43	46.8	260	365
	Annual	0.4	9	9.4	60	80
PM_{10}	24-Hour	103.8	33	136.8	150	150
	Annual	14.6	16	30.6	50	50
$PM_{2.5}$	24-Hour	19.2	13	32.2	65[1]	65
	Annual	2.6	5	7.6	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.3 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Low Emissions WDR075 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	9.6	3.4	13.0	100	100
SO_2	3 Hour	15.4	132	147.4	1,300	1,300
	24-Hour	3.8	43	46.8	260	365
	Annual	0.3	9	9.3	60	80
PM_{10}	24-Hour	97.0	33	130.0	150	150
	Annual	13.6	16	29.6	50	50
$PM_{2.5}$	24-Hour	17.7	13	30.7	65[1]	65
	Annual	2.4	5	7.4	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.4 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative High Emissions WDR250 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	34.2	3.4	37.6	100	100
SO_2	3 Hour	99.9	132	231.9	1,300	1,300
	24-Hour	20.3	43	63.3	260	365
	Annual	2.0	9	11.0	60	80
PM_{10}	24-Hour	116.0	33	149.0	150	150
	Annual	17.5	16	33.5	50	50
$PM_{2.5}$	24-Hour	25.2	13	38.2	65[1]	65
	Annual	4.7	5	9.7	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.5 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative High Emissions WDR150 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	30.7	3.4	34.1	100	100
SO_2	3 Hour	75.8	132	207.8	1,300	1,300
	24-Hour	18.5	43	61.5	260	365
	Annual	1.8	9	10.8	60	80
PM_{10}	24-Hour	104.9	33	137.9	150	150
	Annual	16.1	16	32.1	50	50
$PM_{2.5}$	24-Hour	22.0	13	35.0	65[1]	65
	Annual	4.2	5	9.2	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.6 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative High Emissions WDR075 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	24.8	3.4	28.2	100	100
SO_2	3 Hour	75.8	132	207.8	1,300	1,300
	24-Hour	18.5	43	61.5	260	365
	Annual	1.4	9	10.4	60	80
PM_{10}	24-Hour	97.1	33	130.1	150	150
	Annual	14.9	16	30.9	50	50
$PM_{2.5}$	24-Hour	21.9	13	34.9	65[1]	65
	Annual	3.8	5	8.8	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.7 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	27.3	3.4	30.7	100	100
SO_2	3 Hour	79.9	132	211.9	1,300	1,300
	24-Hour	16.2	43	59.2	260	365
	Annual	1.6	9	10.6	60	80
PM_{10}	24-Hour	92.9	33	125.9	150	150
	Annual	14.0	16	30.0	50	50
$PM_{2.5}$	24-Hour	20.1	13	33.1	65[1]	65
	Annual	3.7	5	8.7	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.8 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	20.5	3.4	23.9	100	100
SO_2	3 Hour	59.9	132	191.9	1,300	1,300
	24-Hour	12.2	43	55.2	260	365
	Annual	1.2	9	10.2	60	80
PM_{10}	24-Hour	69.7	33	102.7	150	150
	Annual	10.5	16	26.5	50	50
$PM_{2.5}$	24-Hour	15.1	13	28.1	65[1]	65
	Annual	2.8	5	7.8	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.9 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	13.7	3.4	17.1	100	100
SO_2	3 Hour	39.9	132	171.9	1,300	1,300
	24-Hour	8.1	43	51.1	260	365
	Annual	0.8	9	9.8	60	80
PM_{10}	24-Hour	46.5	33	79.5	150	150
	Annual	7.0	16	23.0	50	50
$PM_{2.5}$	24-Hour	10.1	13	23.1	65[1]	65
	Annual	1.9	5	6.9	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.10 Maximum Predicted Impacts Within the JIDPA from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	6.8	3.4	10.2	100	100
SO_2	3 Hour	20.0	132	152.0	1,300	1,300
	24-Hour	4.1	43	47.1	260	365
	Annual	0.4	9	9.4	60	80
PM_{10}	24-Hour	23.2	33	56.2	150	150
	Annual	3.5	16	19.5	50	50
$PM_{2.5}$	24-Hour	5.0	13	18.0	65[1]	65
	Annual	0.9	5	5.9	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.11 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Low Emissions WDR250 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	13.3	3.4	16.7	100	100
SO_2	3 Hour	20.2	132	152.2	1,300	1,300
	24-Hour	4.0	43	47.0	260	365
	Annual	0.4	9	9.4	60	80
PM_{10}	24-Hour	113.1	33	146.1	150	150
	Annual	15.8	16	31.8	50	50
$PM_{2.5}$	24-Hour	21.4	13	34.4	65[1]	65
	Annual	2.9	5	7.9	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.12 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Low Emissions WDR150 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	11.7	3.4	15.1	100	100
SO_2	3 Hour	15.4	132	147.4	1,300	1,300
	24-Hour	3.6	43	46.6	260	365
	Annual	0.4	9	9.4	60	80
PM_{10}	24-Hour	103.9	33	136.9	150	150
	Annual	14.6	16	30.6	50	50
$PM_{2.5}$	24-Hour	19.3	13	32.3	65[1]	65
	Annual	2.6	5	7.6	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.13 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Low Emissions WDR075 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact (μg/m^3)	Background Concentration (μg/m^3)	Total Concentration (μg/m^3)	WAAQS (μg/m^3)	NAAQS (μg/m^3)
NO_2	Annual	9.9	3.4	13.3	100	100
SO_2	3 Hour	15.4	132	147.4	1,300	1,300
	24-Hour	3.6	43	46.6	260	365
	Annual	0.3	9	9.3	60	80
PM_{10}	24-Hour	97.1	33	130.1	150	150
	Annual	13.6	16	29.6	50	50
$PM_{2.5}$	24-Hour	17.8	13	30.8	65[1]	65
	Annual	2.4	5	7.4	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.14 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative High Emissions WDR250 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	34.4	3.4	37.8	100	100
SO_2	3 Hour	99.8	132	231.8	1,300	1,300
	24-Hour	20.2	43	63.2	260	365
	Annual	1.9	9	10.9	60	80
PM_{10}	24-Hour	116.3	33	149.3	150	150
	Annual	17.5	16	33.5	50	50
$PM_{2.5}$	24-Hour	25.1	13	38.1	65[1]	65
	Annual	4.7	5	9.7	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.15 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative High Emissions WDR150 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	31.0	3.4	34.4	100	100
SO_2	3 Hour	75.8	132	207.8	1,300	1,300
	24-Hour	18.4	43	61.4	260	365
	Annual	1.8	9	10.8	60	80
PM_{10}	24-Hour	105.0	33	138.0	150	150
	Annual	16.1	16	32.1	50	50
$PM_{2.5}$	24-Hour	22.0	13	35.0	65[1]	65
	Annual	4.2	5	9.2	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.16 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative High Emissions WDR075 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	25.1	3.4	28.5	100	100
SO_2	3 Hour	75.8	132	207.8	1,300	1,300
	24-Hour	18.4	43	61.4	260	365
	Annual	1.4	9	10.4	60	80
PM_{10}	24-Hour	97.3	33	130.3	150	150
	Annual	14.9	16	30.9	50	50
$PM_{2.5}$	24-Hour	21.9	13	34.9	65[1]	65
	Annual	3.8	5	8.8	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.17 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	27.6	3.4	31.0	100	100
SO_2	3 Hour	79.8	132	211.8	1,300	1,300
	24-Hour	16.1	43	59.1	260	365
	Annual	1.6	9	10.6	60	80
PM_{10}	24-Hour	93.0	33	126.0	150	150
	Annual	14.0	16	30.0	50	50
$PM_{2.5}$	24-Hour	20.1	13	33.1	65[1]	65
	Annual	3.8	5	8.8	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.18 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	20.8	3.4	24.2	100	100
SO_2	3 Hour	59.8	132	191.8	1,300	1,300
	24-Hour	12.1	43	55.1	260	365
	Annual	1.2	9	10.2	60	80
PM_{10}	24-Hour	69.8	33	102.8	150	150
	Annual	10.5	16	26.5	50	50
$PM_{2.5}$	24-Hour	15.0	13	28.0	65[1]	65
	Annual	2.8	5	7.8	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.19 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	13.9	3.4	17.3	100	100
SO_2	3 Hour	39.8	132	171.8	1,300	1,300
	24-Hour	8.0	43	51.0	260	365
	Annual	0.8	9	9.8	60	80
PM_{10}	24-Hour	46.6	33	79.6	150	150
	Annual	7.0	16	23.0	50	50
$PM_{2.5}$	24-Hour	10.0	13	23.0	65[1]	65
	Annual	1.9	5	6.9	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.5.20 Maximum Predicted Cumulative Impacts Within the JIDPA from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources - Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	7.1	3.4	10.5	100	100
SO_2	3 Hour	19.9	132	151.9	1,300	1,300
	24-Hour	4.0	43	47.0	260	365
	Annual	0.4	9	9.4	60	80
PM_{10}	24-Hour	23.3	33	56.3	150	150
	Annual	3.5	16	19.5	50	50
$PM_{2.5}$	24-Hour	5.0	13	18.0	65[1]	65
	Annual	1.0	5	6.0	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table C.6.1 Maximum Modeled Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources

	Modeling Scenario										
Receptor Area	Low Emissions WDR250	Low Emissions WDR150	Low Emissions WDR075	High Emissions WDR250	High Emissions WDR150	High Emissions WDR075	20% Emissions Reduction WDR250	40% Emissions Reduction WDR250	60% Emissions Reduction WDR250	80% Emissions Reduction WDR250	Deposition Analysis Threshold for Project Alone[1]
Bridger WA	0.0334	0.023	0.016	0.077	0.051	0.031	0.062	0.046	0.031	0.015	0.005
Fitzpatrick WA	0.00256	0.0018	0.0012	0.0055	0.0036	0.0020	0.0044	0.0033	0.0022	0.0011	0.005
Grand Teton NP	0.00112	0.0008	0.00051	0.00239	0.0015	0.00088	0.00191	0.0014	0.00096	0.00048	0.005
Popo Agie WA	0.0159	0.011	0.007	0.0354	0.023	0.014	0.0283	0.021	0.014	0.0071	0.005
Teton WA	0.00053	0.00037	0.00024	0.00113	0.00073	0.00041	0.00090	0.00068	0.00045	0.00023	0.005
Washakie WA	0.00069	0.00048	0.00031	0.00142	0.00092	0.00052	0.00114	0.00085	0.00057	0.00028	0.005
Wind River RA	0.00945	0.0067	0.0043	0.0214	0.014	0.0077	0.0172	0.0129	0.0086	0.0043	0.005
Yellowstone NP	0.000390	0.00027	0.00018	0.00084	0.00054	0.00031	0.00067	0.00050	0.00034	0.00017	0.005

[1] National Park Service (2001).

Table C.6.2 Maximum Modeled Total Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative and Regional Sources

Receptor Area	Low Emissions WDR250		Low Emissions WDR150		Low Emissions WDR075		High Emissions WDR250		High Emissions WDR150		Level of Concern for Total Impacts [1]
	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	
Bridger WA	0.055	1.555	0.047	1.547	0.040	1.540	0.093	1.593	0.070	1.570	3.00
Fitzpatrick WA	0.0078	1.508	0.0070	1.507	0.0064	1.506	0.011	1.511	0.0088	1.509	3.00
Grand Teton NP	0.0103	1.510	0.010	1.510	0.010	1.510	0.012	1.512	0.011	1.511	3.00
Popo Agie WA	0.028	1.528	0.023	1.523	0.020	1.520	0.048	1.548	0.035	1.535	3.00
Teton WA	0.0036	1.504	0.0035	1.503	0.0033	1.503	0.0042	1.504	0.0038	1.504	3.00
Washakie WA	0.0040	1.504	0.0039	1.504	0.0037	1.504	0.0046	1.505	0.0042	1.504	3.00
Wind River RA	0.020	1.520	0.017	1.517	0.015	1.515	0.032	1.532	0.025	1.525	3.00
Yellowstone NP	0.0026	1.503	0.0025	1.503	0.0024	1.502	0.0030	1.503	0.0028	1.503	3.00

Receptor Area	High Emissions WDR075		20% Emissions Reduction WDR250		40% Emissions Reduction WDR250		60% Emissions Reduction WDR250		80% Emissions Reduction WDR250		Level of Concern for Total Impacts [1]
	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	
Bridger WA	0.050	1.550	0.080	1.580	0.067	1.567	0.054	1.554	0.042	1.542	3.00
Fitzpatrick WA	0.0072	1.507	0.0096	1.510	0.0085	1.509	0.0074	1.507	0.0063	1.506	3.00
Grand Teton NP	0.010	1.510	0.011	1.511	0.011	1.511	0.010	1.510	0.010	1.510	3.00
Popo Agie WA	0.026	1.526	0.041	1.541	0.033	1.533	0.026	1.526	0.019	1.519	3.00
Teton WA	0.0035	1.503	0.0040	1.504	0.0038	1.504	0.0035	1.504	0.0033	1.503	3.00
Washakie WA	0.0039	1.504	0.0044	1.504	0.0041	1.504	0.0039	1.504	0.0037	1.504	3.00
Wind River RA	0.018	1.518	0.028	1.528	0.024	1.524	0.019	1.519	0.015	1.515	3.00
Yellowstone NP	0.0025	1.503	0.0029	1.503	0.0027	1.503	0.0026	1.503	0.0024	1.502	3.00

[1] Fox et al. (1989)
[2] Includes N deposition value of 1.5 kg/ha-yr measured near Pinedale for the year 2001.

Table C.6.3 Maximum Modeled Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Sources

	Modeling Scenario										
Receptor Area	Low Emissions WDR250	Low Emissions WDR150	Low Emissions WDR075	High Emissions WDR250	High Emissions WDR150	High Emissions WDR075	20% Emissions Reduction WDR250	40% Emissions Reduction WDR250	60% Emissions Reduction WDR250	80% Emissions Reduction WDR250	Deposition Analysis Threshold for Project Alone[1]
Bridger WA	0.0016	0.0010	0.00057	0.0077	0.0048	0.0027	0.00616	0.0046	0.0031	0.0015	0.005
Fitzpatrick WA	0.00016	0.00010	0.000050	0.00079	0.00048	0.00023	0.00063	0.00047	0.00032	0.00016	0.005
Grand Teton NP	0.000073	0.000044	0.000022	0.00035	0.00021	0.00010	0.00028	0.00021	0.00014	0.000070	0.005
Popo Agie WA	0.00081	0.00050	0.00027	0.00390	0.0024	0.0012	0.00312	0.0023	0.0016	0.00078	0.005
Teton WA	0.000041	0.000025	0.000012	0.00020	0.00012	0.000057	0.00016	0.00012	0.000078	0.000039	0.005
Washakie WA	0.000047	0.000029	0.000014	0.00023	0.00014	0.000065	0.00018	0.00014	0.000091	0.000045	0.005
Wind River RA	0.00047	0.00029	0.00014	0.0023	0.0014	0.00065	0.0018	0.0014	0.00091	0.00045	0.005
Yellowstone NP	0.000027	0.000016	0.000008	0.00013	0.000078	0.000038	0.00010	0.000077	0.000051	0.000026	0.005

[1] National Park Service (2001).

Table C.6.4 Maximum Modeled Total Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative and Regional Sources

Receptor Area	Low Emissions WDR250		Low Emissions WDR150		Low Emissions WDR075		High Emissions WDR250		High Emissions WDR150		Level of Concern for Total Impacts[1]
	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	
Bridger WA	-0.00085	0.74915	-0.00087	0.74913	-0.00089	0.74911	0.0041	0.75408	0.0011	0.75113	5.00
Fitzpatrick WA	-0.00075	0.74925	-0.00078	0.74922	-0.00079	0.74921	-0.00051	0.74949	-0.00063	0.74937	5.00
Grand Teton NP	0.0034	0.75345	0.0034	0.75342	0.0034	0.75340	0.0037	0.75372	0.0036	0.75358	5.00
Popo Agie WA	-0.0021	0.74793	-0.0023	0.74770	-0.0025	0.74753	0.00027	0.75027	-0.00089	0.74911	5.00
Teton WA	0.00085	0.75085	0.00084	0.75084	0.00082	0.75082	0.00101	0.75101	0.00093	0.75093	5.00
Washakie WA	-0.00013	0.74987	-0.00013	0.74987	-0.00014	0.74986	-0.00008	0.74992	-0.00011	0.74989	5.00
Wind River RA	-0.0011	0.74892	-0.0011	0.74889	-0.0011	0.74887	-0.0004	0.74961	-0.0010	0.74904	5.00
Yellowstone NP	0.0010	0.75102	0.0010	0.75101	0.0010	0.75100	0.0011	0.75110	0.0011	0.75106	5.00

Receptor Area	High Emissions WDR075		20% Emissions Reduction WDR250		40% Emissions Reduction WDR250		60% Emissions Reduction WDR250		80% Emissions Reduction WDR250		Level of Concern for Total Impacts[1]
	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	Modeled Impact	Total Impact[2]	
Bridger WA	-0.00083	0.74917	0.00254	0.75254	0.0010	0.75100	-0.00054	0.74946	-0.00085	0.74915	5.00
Fitzpatrick WA	-0.00072	0.74928	-0.00057	0.74943	-0.00063	0.74937	-0.00069	0.74931	-0.00075	0.74925	5.00
Grand Teton NP	0.0035	0.75348	0.0037	0.75365	0.0036	0.75358	0.0035	0.75351	0.0034	0.75344	5.00
Popo Agie WA	-0.0018	0.74823	-0.00034	0.74966	-0.00093	0.74907	-0.0015	0.74849	-0.0021	0.74790	5.00
Teton WA	0.00087	0.75087	0.00097	0.75097	0.00093	0.75093	0.00089	0.75089	0.00085	0.75085	5.00
Washakie WA	-0.00012	0.74988	-0.00009	0.74991	-0.00011	0.74989	-0.00012	0.74988	-0.00013	0.74987	5.00
Wind River RA	-0.0011	0.74894	-0.0008	0.74916	-0.0010	0.74904	-0.0010	0.74898	-0.0011	0.74891	5.00
Yellowstone NP	0.0010	0.75103	0.0011	0.75108	0.0011	0.75106	0.0010	0.75104	0.0010	0.75102	5.00

[1] Fox et al. (1989)

[2] Includes S deposition value of 0.75 kg/ha-yr measured near Pinedale for the year 2001.

Note: Negative results reflect a net decrease in cumulative SO_2 emissions.

Table C.7.1 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Low Emissions WDR250

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.70	0.10	0.149%
Deep	Bridger	59.9	5.99	0.11	0.183%
Hobbs	Bridger	69.9	6.99	0.02	0.029%
Lazy Boy	Bridger	18.8	1.00	0.01	0.037%
Lower Saddlebag	Popo Agie	55.5	5.55	0.12	0.223%
Ross	Fitzpatrick	53.5	5.35	0.01	0.013%
Upper Frozen	Bridger	5.0	1.00	0.14	2.705%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.2 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Low Emissions WDR150

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.07	0.105%
Deep	Bridger	59.9	6.0	0.08	0.129%
Hobbs	Bridger	69.9	7.0	0.01	0.020%
Lazy Boy	Bridger	18.8	1.0	0.00	0.026%
Lower Saddlebag	Popo Agie	55.5	5.6	0.09	0.157%
Ross	Fitzpatrick	53.5	5.4	0.00	0.009%
Upper Frozen	Bridger	5.0	1.0	0.10	1.903%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.3 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Low Emissions WDR075

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(µeq/L)	(µeq/L)	(µeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.047	0.071%
Deep	Bridger	59.9	6.0	0.051	0.085%
Hobbs	Bridger	69.9	7.0	0.009	0.013%
Lazy Boy	Bridger	18.8	1.0	0.003	0.017%
Lower Saddlebag	Popo Agie	55.5	5.6	0.058	0.104%
Ross	Fitzpatrick	53.5	5.4	0.003	0.006%
Upper Frozen	Bridger	5.0	1.0	0.062	1.235%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.4 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative High Emissions WDR250

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.7	0.234	0.350%
Deep	Bridger	59.9	6.0	0.257	0.429%
Hobbs	Bridger	69.9	7.0	0.048	0.068%
Lazy Boy	Bridger	18.8	1.0	0.015	0.082%
Lower Saddlebag	Popo Agie	55.5	5.6	0.283	0.509%
Ross	Fitzpatrick	53.5	5.4	0.015	0.029%
Upper Frozen	Bridger	5.0	1.0	0.322	6.432%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.5 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative High Emissions WDR150

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.151	0.226%
Deep	Bridger	59.9	6.0	0.167	0.278%
Hobbs	Bridger	69.9	7.0	0.030	0.043%
Lazy Boy	Bridger	18.8	1.0	0.010	0.054%
Lower Saddlebag	Popo Agie	55.5	5.6	0.183	0.329%
Ross	Fitzpatrick	53.5	5.4	0.010	0.019%
Upper Frozen	Bridger	5.0	1.0	0.210	4.191%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.6 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative High Emissions WDR075

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(µeq/L)	(µeq/L)	(µeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.087	0.130%
Deep	Bridger	59.9	6.0	0.093	0.156%
Hobbs	Bridger	69.9	7.0	0.016	0.023%
Lazy Boy	Bridger	18.8	1.0	0.006	0.030%
Lower Saddlebag	Popo Agie	55.5	5.6	0.109	0.197%
Ross	Fitzpatrick	53.5	5.4	0.006	0.011%
Upper Frozen	Bridger	5.0	1.0	0.117	2.334%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.7 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 20% Emissions Reduction WDR250

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.187	0.280%
Deep	Bridger	59.9	6.0	0.206	0.343%
Hobbs	Bridger	69.9	7.0	0.038	0.055%
Lazy Boy	Bridger	18.8	1.0	0.012	0.066%
Lower Saddlebag	Popo Agie	55.5	5.6	0.226	0.407%
Ross	Fitzpatrick	53.5	5.4	0.012	0.023%
Upper Frozen	Bridger	5.0	1.0	0.257	5.146%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.8 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 40% Emissions Reduction WDR250

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.141	0.210%
Deep	Bridger	59.9	6.0	0.154	0.257%
Hobbs	Bridger	69.9	7.0	0.029	0.041%
Lazy Boy	Bridger	18.8	1.0	0.009	0.049%
Lower Saddlebag	Popo Agie	55.5	5.6	0.170	0.305%
Ross	Fitzpatrick	53.5	5.4	0.009	0.017%
Upper Frozen	Bridger	5.0	1.0	0.193	3.859%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.9 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 60% Emissions Reduction WDR250

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.7	0.094	0.140%
Deep	Bridger	59.9	6.0	0.103	0.172%
Hobbs	Bridger	69.9	7.0	0.019	0.027%
Lazy Boy	Bridger	18.8	1.0	0.006	0.033%
Lower Saddlebag	Popo Agie	55.5	5.6	0.113	0.204%
Ross	Fitzpatrick	53.5	5.4	0.006	0.012%
Upper Frozen	Bridger	5.0	1.0	0.129	2.573%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.10 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 80% Emissions Reduction WDR250

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(µeq/L)	(µeq/L)	(µeq/L)	(%)
Black Joe	Bridger	67.0	6.7	0.047	0.070%
Deep	Bridger	59.9	6.0	0.051	0.086%
Hobbs	Bridger	69.9	7.0	0.010	0.014%
Lazy Boy	Bridger	18.8	1.0	0.003	0.016%
Lower Saddlebag	Popo Agie	55.5	5.6	0.057	0.102%
Ross	Fitzpatrick	53.5	5.4	0.003	0.006%
Upper Frozen	Bridger	5.0	1.0	0.064	1.286%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.11 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Low Emissions WDR250 and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(µeq/L)	(µeq/L)	(µeq/L)	(%)
Black Joe	Bridger	67.0	6.70	0.180	0.27%
Deep	Bridger	59.9	5.99	0.190	0.32%
Hobbs	Bridger	69.9	6.99	0.061	0.09%
Lazy Boy	Bridger	18.8	1.00	0.031	0.17%
Lower Saddlebag	Popo Agie	55.5	5.55	0.215	0.39%
Ross	Fitzpatrick	53.5	5.35	0.032	0.06%
Upper Frozen	Bridger	5.0	1.00	0.220	4.40%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.12 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Low Emissions WDR150 and Regional Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.152	0.23%
Deep	Bridger	59.9	5.99	0.160	0.27%
Hobbs	Bridger	69.9	6.99	0.055	0.08%
Lazy Boy	Bridger	18.8	1.00	0.029	0.16%
Lower Saddlebag	Popo Agie	55.5	5.55	0.179	0.32%
Ross	Fitzpatrick	53.5	5.35	0.030	0.06%
Upper Frozen	Bridger	5.0	1.00	0.182	3.64%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.13 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Low Emissions WDR075 and Regional Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.130	0.19%
Deep	Bridger	59.9	5.99	0.135	0.23%
Hobbs	Bridger	69.9	6.99	0.050	0.07%
Lazy Boy	Bridger	18.8	1.00	0.028	0.15%
Lower Saddlebag	Popo Agie	55.5	5.55	0.152	0.27%
Ross	Fitzpatrick	53.5	5.35	0.029	0.05%
Upper Frozen	Bridger	5.0	1.00	0.150	3.00%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.14 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative High Emissions WDR250 and Regional Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.299	0.45%
Deep	Bridger	59.9	5.99	0.321	0.54%
Hobbs	Bridger	69.9	6.99	0.084	0.12%
Lazy Boy	Bridger	18.8	1.00	0.038	0.20%
Lower Saddlebag	Popo Agie	55.5	5.55	0.354	0.64%
Ross	Fitzpatrick	53.5	5.35	0.039	0.07%
Upper Frozen	Bridger	5.0	1.00	0.387	7.74%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.15 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative High Emissions WDR150 and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.70	0.224	0.33%
Deep	Bridger	59.9	5.99	0.239	0.40%
Hobbs	Bridger	69.9	6.99	0.068	0.10%
Lazy Boy	Bridger	18.8	1.00	0.034	0.18%
Lower Saddlebag	Popo Agie	55.5	5.55	0.264	0.48%
Ross	Fitzpatrick	53.5	5.35	0.034	0.06%
Upper Frozen	Bridger	5.0	1.00	0.283	5.66%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.16 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative High Emissions WDR075 and Regional Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.166	0.25%
Deep	Bridger	59.9	5.99	0.172	0.29%
Hobbs	Bridger	69.9	6.99	0.056	0.08%
Lazy Boy	Bridger	18.8	1.00	0.030	0.16%
Lower Saddlebag	Popo Agie	55.5	5.55	0.197	0.36%
Ross	Fitzpatrick	53.5	5.35	0.031	0.06%
Upper Frozen	Bridger	5.0	1.00	0.199	3.98%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.17 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(µeq/L)	(µeq/L)	(µeq/L)	(%)
Black Joe	Bridger	67.0	6.70	0.256	0.38%
Deep	Bridger	59.9	5.99	0.274	0.46%
Hobbs	Bridger	69.9	6.99	0.075	0.11%
Lazy Boy	Bridger	18.8	1.00	0.036	0.19%
Lower Saddlebag	Popo Agie	55.5	5.55	0.303	0.55%
Ross	Fitzpatrick	53.5	5.35	0.036	0.07%
Upper Frozen	Bridger	5.0	1.00	0.326	6.51%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.18 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources

Lake	Wilderness Area	Background ANC (µeq/L)	Level of Acceptable Change[1] (µeq/L)	ANC Change (µeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.213	0.32%
Deep	Bridger	59.9	5.99	0.227	0.38%
Hobbs	Bridger	69.9	6.99	0.067	0.10%
Lazy Boy	Bridger	18.8	1.00	0.033	0.17%
Lower Saddlebag	Popo Agie	55.5	5.55	0.251	0.45%
Ross	Fitzpatrick	53.5	5.35	0.034	0.06%
Upper Frozen	Bridger	5.0	1.00	0.267	5.33%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.19 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.170	0.25%
Deep	Bridger	59.9	5.99	0.180	0.30%
Hobbs	Bridger	69.9	6.99	0.058	0.08%
Lazy Boy	Bridger	18.8	1.00	0.030	0.16%
Lower Saddlebag	Popo Agie	55.5	5.55	0.199	0.36%
Ross	Fitzpatrick	53.5	5.35	0.031	0.06%
Upper Frozen	Bridger	5.0	1.00	0.208	4.16%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.7.20 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.70	0.127	0.19%
Deep	Bridger	59.9	5.99	0.133	0.22%
Hobbs	Bridger	69.9	6.99	0.050	0.07%
Lazy Boy	Bridger	18.8	1.00	0.027	0.15%
Lower Saddlebag	Popo Agie	55.5	5.55	0.147	0.27%
Ross	Fitzpatrick	53.5	5.35	0.028	0.05%
Upper Frozen	Bridger	5.0	1.00	0.149	2.98%

[1] USFS Level of Acceptable Change (USFS 2000).

Table C.8.1 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.96	22	9	3.26	26	9
Fitzpatrick WA	0.53	2	0	0.61	3	0
Grand Teton NP	0.31	0	0	0.31	0	0
Popo Agie WA	0.51	2	0	0.59	2	0
Teton WA	0.13	0	0	0.14	0	0
Washakie WA	0.23	0	0	0.23	0	0
Wind River RA	0.43	0	0	0.50	0	0
Yellowstone NP	0.15	0	0	0.15	0	0

[1] Δdv = change in deciview.

Table C.8.2 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.23	13	5	2.46	18	6
Fitzpatrick WA	0.37	0	0	0.43	0	0
Grand Teton NP	0.22	0	0	0.23	0	0
Popo Agie WA	0.37	0	0	0.43	0	0
Teton WA	0.10	0	0	0.10	0	0
Washakie WA	0.17	0	0	0.17	0	0
Wind River RA	0.31	0	0	0.35	0	0
Yellowstone NP	0.11	0	0	0.11	0	0

[1] Δdv = change in deciview.

Table C.8.3 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.59	9	2	1.77	10	2
Fitzpatrick WA	0.25	0	0	0.29	0	0
Grand Teton NP	0.15	0	0	0.15	0	0
Popo Agie WA	0.28	0	0	0.31	0	0
Teton WA	0.06	0	0	0.06	0	0
Washakie WA	0.11	0	0	0.11	0	0
Wind River RA	0.22	0	0	0.25	0	0
Yellowstone NP	0.07	0	0	0.07	0	0

[1] Δdv = change in deciview.

Table C.8.4 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	5.92	67	23	6.44	70	31
Fitzpatrick WA	1.34	6	2	1.54	9	3
Grand Teton NP	0.65	1	0	0.66	1	0
Popo Agie WA	1.21	17	2	1.36	19	2
Teton WA	0.27	0	0	0.28	0	0
Washakie WA	0.47	0	0	0.48	0	0
Wind River RA	1.06	10	1	1.22	15	1
Yellowstone NP	0.30	0	0	0.31	0	0

[1] Δdv = change in deciview.

Table C.8.5 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	4.23	38	15	4.64	46	17
Fitzpatrick WA	0.88	3	0	1.01	4	1
Grand Teton NP	0.44	0	0	0.45	0	0
Popo Agie WA	0.79	3	0	0.90	5	0
Teton WA	0.18	0	0	0.18	0	0
Washakie WA	0.31	0	0	0.32	0	0
Wind River RA	0.69	2	0	0.80	3	0
Yellowstone NP	0.20	0	0	0.20	0	0

[1] Δdv = change in deciview.

Table C.8.6 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.61	17	8	2.97	21	7
Fitzpatrick WA	0.50	0	0	0.58	1	0
Grand Teton NP	0.26	0	0	0.26	0	0
Popo Agie WA	0.47	0	0	0.55	2	0
Teton WA	0.10	0	0	0.10	0	0
Washakie WA	0.18	0	0	0.18	0	0
Wind River RA	0.41	0	0	0.47	0	0
Yellowstone NP	0.12	0	0	0.12	0	0

[1] Δdv = change in deciview.

Table C.8.7 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	4.98	52	19	5.45	52	20
Fitzpatrick WA	1.08	4	1	1.25	4	1
Grand Teton NP	0.53	1	0	0.53	1	0
Popo Agie WA	0.98	11	0	1.11	12	2
Teton WA	0.22	0	0	0.22	0	0
Washakie WA	0.38	0	0	0.38	0	0
Wind River RA	0.85	6	0	0.98	8	0
Yellowstone NP	0.24	0	0	0.25	0	0

[1] Δdv = change in deciview.

Table C.8.8 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	3.95	37	14	4.34	39	15
Fitzpatrick WA	0.82	3	0	0.95	3	0
Grand Teton NP	0.40	0	0	0.40	0	0
Popo Agie WA	0.74	2	0	0.84	4	0
Teton WA	0.17	0	0	0.17	0	0
Washakie WA	0.28	0	0	0.29	0	0
Wind River RA	0.65	1	0	0.75	1	0
Yellowstone NP	0.18	0	0	0.19	0	0

[1] Δdv = change in deciview.

Table C.8.9 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.80	20	9	3.09	20	9
Fitzpatrick WA	0.56	1	0	0.64	2	0
Grand Teton NP	0.27	0	0	0.27	0	0
Popo Agie WA	0.50	1	0	0.57	2	0
Teton WA	0.11	0	0	0.11	0	0
Washakie WA	0.19	0	0	0.19	0	0
Wind River RA	0.44	0	0	0.50	1	0
Yellowstone NP	0.12	0	0	0.12	0	0

[1] Δdv = change in deciview.

Table C.8.10 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	1.50	9	2	1.66	9	3
Fitzpatrick WA	0.28	0	0	0.33	0	0
Grand Teton NP	0.13	0	0	0.14	0	0
Popo Agie WA	0.25	0	0	0.29	0	0
Teton WA	0.06	0	0	0.06	0	0
Washakie WA	0.10	0	0	0.10	0	0
Wind River RA	0.22	0	0	0.26	0	0
Yellowstone NP	0.06	0	0	0.06	0	0

[1] Δdv = change in deciview.

Table C.8.11 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR250 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	3.43	37	11	3.78	44	15
Fitzpatrick WA	0.74	5	0	0.85	7	0
Grand Teton NP	0.48	0	0	0.49	0	0
Popo Agie WA	0.83	8	0	0.97	13	0
Teton WA	0.23	0	0	0.23	0	0
Washakie WA	0.33	0	0	0.33	0	0
Wind River RA	1.07	6	1	1.19	11	2
Yellowstone NP	0.24	0	0	0.25	0	0

[1] Δdv = change in deciview.

Table C.8.12 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR150 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.74	27	8	3.03	34	9
Fitzpatrick WA	0.60	3	0	0.69	4	0
Grand Teton NP	0.40	0	0	0.40	0	0
Popo Agie WA	0.73	6	0	0.85	8	0
Teton WA	0.20	0	0	0.20	0	0
Washakie WA	0.28	0	0	0.28	0	0
Wind River RA	0.97	5	0	1.08	7	2
Yellowstone NP	0.20	0	0	0.20	0	0

[1] Δdv = change in deciview.

Table C.8.13 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Low Emissions WDR075 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.30	20	4	2.63	24	6
Fitzpatrick WA	0.52	1	0	0.60	2	0
Grand Teton NP	0.36	0	0	0.36	0	0
Popo Agie WA	0.66	3	0	0.76	6	0
Teton WA	0.18	0	0	0.18	0	0
Washakie WA	0.24	0	0	0.24	0	0
Wind River RA	0.89	4	0	0.99	6	0
Yellowstone NP	0.18	0	0	0.18	0	0

[1] Δdv = change in deciview.

Table C.8.14 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR250 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	6.28	80	32	6.82	90	39
Fitzpatrick WA	1.37	10	3	1.58	13	3
Grand Teton NP	0.82	3	0	0.83	3	0
Popo Agie WA	1.45	28	4	1.67	31	6
Teton WA	0.34	0	0	0.34	0	0
Washakie WA	0.57	1	0	0.58	1	0
Wind River RA	1.39	22	3	1.54	22	5
Yellowstone NP	0.39	0	0	0.40	0	0

[1] Δdv = change in deciview.

Table C.8.15 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR150 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	4.66	62	18	5.09	63	24
Fitzpatrick WA	0.93	7	0	1.07	9	2
Grand Teton NP	0.61	1	0	0.62	1	0
Popo Agie WA	1.06	17	1	1.22	21	3
Teton WA	0.27	0	0	0.27	0	0
Washakie WA	0.41	0	0	0.42	0	0
Wind River RA	1.15	15	2	1.28	17	2
Yellowstone NP	0.29	0	0	0.30	0	0

[1] Δdv = change in deciview.

Table C.8.16 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative High Emissions WDR075 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	3.11	32	11	3.42	40	13
Fitzpatrick WA	0.66	4	0	0.76	6	0
Grand Teton NP	0.43	0	0	0.44	0	0
Popo Agie WA	0.78	7	0	0.90	11	0
Teton WA	0.21	0	0	0.21	0	0
Washakie WA	0.29	0	0	0.30	0	0
Wind River RA	0.95	5	0	1.06	10	2
Yellowstone NP	0.21	0	0	0.21	0	0

[1] Δdv = change in deciview.

Table C.8.17 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	5.38	71	25	5.87	73	29
Fitzpatrick WA	1.12	9	2	1.29	12	3
Grand Teton NP	0.70	1	0	0.70	2	0
Popo Agie WA	1.23	22	3	1.42	26	4
Teton WA	0.30	0	0	0.30	0	0
Washakie WA	0.48	0	0	0.48	0	0
Wind River RA	1.26	18	2	1.40	20	3
Yellowstone NP	0.33	0	0	0.34	0	0

[1] Δdv = change in deciview.

Table C.8.18 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	4.39	52	16	4.80	58	21
Fitzpatrick WA	0.86	7	0	1.00	9	0
Grand Teton NP	0.57	1	0	0.58	1	0
Popo Agie WA	1.01	15	1	1.16	21	3
Teton WA	0.26	0	0	0.26	0	0
Washakie WA	0.38	0	0	0.39	0	0
Wind River RA	1.13	11	1	1.26	15	2
Yellowstone NP	0.27	0	0	0.28	0	0

[1] Δdv = change in deciview.

Table C.8.19 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	3.29	34	11	3.62	41	15
Fitzpatrick WA	0.66	4	0	0.76	6	0
Grand Teton NP	0.44	0	0	0.45	0	0
Popo Agie WA	0.79	7	0	0.92	11	0
Teton WA	0.21	0	0	0.22	0	0
Washakie WA	0.30	0	0	0.30	0	0
Wind River RA	1.00	4	0	1.11	10	2
Yellowstone NP	0.21	0	0	0.22	0	0

[1] Δdv = change in deciview.

Table C.8.20 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.29	19	5	2.62	21	6
Fitzpatrick WA	0.49	0	0	0.57	2	0
Grand Teton NP	0.34	0	0	0.35	0	0
Popo Agie WA	0.64	2	0	0.75	4	0
Teton WA	0.17	0	0	0.17	0	0
Washakie WA	0.23	0	0	0.23	0	0
Wind River RA	0.86	4	0	0.96	4	0
Yellowstone NP	0.17	0	0	0.18	0	0

[1] Δdv = change in deciview.

Table C.8.21 Bridger Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	2	-	-	-	0.65	-	-	0.52	-	-	-	0.80	0.78	0.77	1.10	0.90	0.77	0.98	0.86	0.78	0.77
3	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.72	0.58	-	0.63	0.54	-	-
4	1	4	-	-	-	0.97	0.72	-	0.78	0.59	-	-	0.53	-	-	1.06	0.81	0.56	0.88	0.69	-	-
6	1	6	2.77	2.06	1.46	5.70	4.08	2.61	4.79	3.79	2.68	1.43	3.05	2.62	2.30	5.91	4.33	2.89	5.02	4.05	2.96	2.29
7	1	7	1.55	1.17	0.85	3.28	2.28	1.36	2.71	2.10	1.45	0.75	2.06	1.70	1.39	3.71	2.75	1.87	3.16	2.58	1.96	1.29
17	1	17	-	-	-	0.76	-	-	0.62	-	-	-	0.52	-	-	0.94	0.68	-	0.80	0.65	0.50	-
18	1	18	-	-	-	0.86	0.54	-	0.70	0.53	-	-	-	-	-	0.99	0.67	-	0.82	0.65	-	-
20	1	20	0.50	-	-	1.21	0.82	-	0.98	0.74	0.50	-	0.61	-	-	1.32	0.93	0.61	1.09	0.85	0.62	-
21	1	21	0.66	-	-	1.62	1.10	0.69	1.32	1.00	0.68	-	0.85	0.67	0.54	1.79	1.28	0.87	1.49	1.18	0.87	0.54
22	1	22	-	-	-	0.64	-	-	0.52	-	-	-	-	-	-	0.71	0.55	-	0.59	-	-	-
23	1	23	1.27	0.89	0.64	2.92	1.92	1.25	2.40	1.86	1.27	0.66	1.56	1.19	0.95	3.17	2.19	1.53	2.66	2.13	1.56	0.96
24	1	24	0.63	-	-	1.34	0.85	0.56	1.09	0.83	0.56	-	1.58	1.41	1.26	2.23	1.75	1.35	2.00	1.76	1.52	1.27
26	1	26	0.51	-	-	1.03	0.67	-	0.83	0.63	-	-	0.60	-	-	1.11	0.76	-	0.91	0.71	0.51	-
27	1	27	-	-	-	0.91	0.60	-	0.73	0.56	-	-	0.60	0.50	-	1.00	0.74	0.54	0.84	0.69	0.54	-
28	1	28	-	-	-	-	-	-	-	-	-	-	0.91	0.85	0.84	1.07	0.88	0.86	1.01	0.96	0.91	0.85
30	1	30	1.68	1.22	0.79	4.00	2.80	1.63	3.32	2.58	1.79	0.94	1.75	1.28	0.86	4.05	2.86	1.70	3.37	2.64	1.86	1.01
39	2	8	-	-	-	0.95	0.66	-	0.76	0.58	-	-	-	-	-	0.99	0.70	-	0.80	0.62	-	-
40	2	9	0.61	-	-	1.39	0.93	-	1.13	0.86	0.58	-	0.64	-	-	1.42	0.96	-	1.16	0.89	0.61	-
41	2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
43	2	12	-	-	-	-	-	-	-	-	-	-	-	-	-	0.64	0.50	-	0.56	-	-	-
44	2	13	0.77	0.57	-	1.84	1.26	0.74	1.49	1.14	0.77	-	0.94	0.74	0.57	1.99	1.42	0.91	1.65	1.30	0.94	0.57
45	2	14	-	-	-	0.62	-	-	-	-	-	-	0.56	-	-	0.87	0.67	0.52	0.75	0.63	0.51	-
53	2	22	-	-	-	0.56	-	-	-	-	-	-	0.62	0.62	0.62	0.69	0.62	0.62	0.62	0.62	0.62	0.62
54	2	23	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
56	2	25	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	-	-	-
57	2	26	-	-	-	0.52	-	-	-	-	-	-	-	-	-	0.61	-	-	0.51	-	-	-
58	2	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	-	-	-
61	3	2	-	-	-	0.89	0.57	-	0.72	0.54	-	-	0.83	0.71	0.60	1.30	0.99	0.72	1.13	0.96	0.80	0.62
62	3	3	-	-	-	0.86	0.56	-	0.70	0.53	-	-	0.57	-	-	1.02	0.73	0.53	0.86	0.69	0.55	-
63	3	4	-	-	-	0.87	0.60	-	0.70	0.53	-	-	0.69	0.57	-	1.08	0.82	0.59	0.91	0.75	0.58	-
74	3	15	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
76	3	17	-	-	-	0.64	-	-	0.52	-	-	-	-	-	-	0.71	0.52	-	0.58	-	-	-
77	3	18	-	-	-	0.57	-	-	-	-	-	-	-	-	-	0.62	-	-	0.50	-	-	-
84	3	25	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	-	-	-
85	3	26	-	-	-	0.85	0.60	-	0.69	0.52	-	-	-	-	-	0.91	0.65	-	0.74	0.58	-	-
86	3	27	-	-	-	0.94	0.64	-	0.76	0.57	-	-	0.65	0.53	-	1.13	0.84	0.59	0.96	0.78	0.59	-
87	3	28	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.72	0.55	-	0.61	0.51	-	-
90	3	31	-	-	-	0.94	0.65	-	0.76	0.58	-	-	0.52	-	-	1.05	0.75	-	0.87	0.68	-	-
92	4	2	-	-	-	0.75	0.52	-	0.61	-	-	-	-	-	-	0.83	0.60	-	0.68	0.54	-	-
103	4	13	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	-	-	-	-
108	4	18	1.14	0.83	0.58	2.65	1.78	1.06	2.17	1.67	1.14	0.59	1.18	0.87	0.62	2.68	1.82	1.10	2.20	1.71	1.18	0.63
109	4	19	1.61	1.17	0.80	3.70	2.58	1.53	3.06	2.38	1.65	0.86	1.65	1.21	0.84	3.73	2.61	1.57	3.10	2.42	1.69	0.90
116	4	26	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	0.50	-	0.56	-	-	-
119	4	29	-	-	-	0.62	-	-	-	-	-	-	-	-	-	0.74	0.51	-	0.62	0.50	-	-
132	5	12	-	-	-	0.98	0.74	-	0.79	0.60	-	-	0.68	0.59	-	1.22	0.99	0.57	1.04	0.85	0.66	-
198	7	17	-	-	-	0.57	-	-	-	-	-	-	-	-	-	0.61	-	-	-	-	-	-
201	7	20	-	-	-	0.73	0.51	-	0.58	-	-	-	-	-	-	0.74	0.52	-	0.59	-	-	-
205	7	24	-	-	-	0.55	-	-	-	-	-	-	-	-	-	0.62	-	-	0.51	-	-	-
254	9	11	-	-	-	0.58	-	-	-	-	-	-	-	-	-	0.63	-	-	0.51	-	-	-
262	9	19	-	-	-	0.58	-	-	-	-	-	-	-	-	-	0.63	-	-	0.52	-	-	-
263	9	20	-	-	-	0.74	-	-	0.60	-	-	-	-	-	-	0.88	0.63	-	0.74	0.60	-	-
265	9	22	0.57	-	-	1.32	0.94	0.57	1.07	0.81	0.55	-	0.65	0.52	-	1.40	1.02	0.65	1.15	0.90	0.64	-
266	9	23	-	-	-	0.62	-	-	0.50	-	-	-	-	-	-	0.82	0.59	-	0.70	0.58	-	-
268	9	25	-	-	-	0.67	-	-	0.54	-	-	-	-	-	-	0.73	0.53	-	0.60	-	-	-
269	9	26	-	-	-	0.65	-	-	0.53	-	-	-	-	-	-	0.67	-	-	0.55	-	-	-
274	10	1	0.94	0.67	-	2.24	1.52	0.91	1.83	1.41	0.96	-	1.25	0.99	0.78	2.52	1.81	1.22	2.12	1.70	1.27	0.81
275	10	2	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.61	-	-	0.50	-	-	-
279	10	6	-	-	-	0.68	-	-	0.55	-	-	-	-	-	-	0.74	0.55	-	0.61	-	-	-
280	10	7	-	-	-	0.71	-	-	0.57	-	-	-	-	-	-	0.85	0.62	-	0.71	0.58	-	-
281	10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0.62	0.50	-	0.54	-	-	-
282	10	9	0.64	0.52	-	1.37	1.02	0.67	1.11	0.85	0.57	-	0.69	0.57	-	1.41	1.06	0.72	1.15	0.89	0.62	-
309	11	5	-	-	-	1.18	0.80	0.50	0.96	0.73	-	-	0.62	-	-	1.34	0.97	0.69	1.12	0.89	0.66	-
320	11	16	-	-	-	0.84	0.61	-	0.68	0.51	-	-	-	-	-	0.89	0.66	-	0.73	0.56	-	-
322	11	18	-	-	-	0.82	-	-	0.66	0.50	-	-	-	-	-	0.88	0.56	-	0.72	0.56	-	-
325	11	21	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.67	-	-	0.56	-	-	-
326	11	22	-	-	-	0.57	-	-	-	-	-	-	-	-	-	0.76	0.57	-	0.65	0.54	-	-
351	12	17	-	-	-	0.91	0.61	-	0.73	0.56	-	-	0.52	-	-	0.97	0.67	-	0.80	0.62	-	-
352	12	18	1.10	0.81	0.62	2.50	1.72	1.18	2.05	1.58	1.08	0.55	1.18	0.90	0.71	2.58	1.80	1.27	2.13	1.66	1.17	0.65
353	12	19	0.85	0.63	-	1.84	1.22	0.83	1.50	1.14	0.78	-	0.89	0.68	0.54	1.88	1.26	0.88	1.54	1.19	0.82	-
354	12	20	0.70	-	-	1.54	0.95	-	1.25	0.95	0.65	-	0.77	0.56	-	1.61	1.03	0.54	1.32	1.03	0.72	-
355	12	21	-	-	-	0.70	-	-	0.56	-	-	-	-	-	-	0.75	0.51	-	0.62	-	-	-
356	12	22	2.95	2.23	1.59	5.92	4.23	2.61	4.98	3.95	2.80	1.50	3.43	2.74	2.14	6.28	4.66	3.11	5.38	4.39	3.29	2.05
357	12	23	1.16	0.85	0.60	2.42	1.60	0.88	1.98	1.52	1.04	0.53	1.46	1.16	0.91	2.69	1.89	1.17	2.26	1.81	1.35	0.86
358	12	24	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.58	-	-	-	-	-	-
359	12	25	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	-	-	0.53	-	-	-
360	12	26	-	-	-	0.69	-	-	0.55	-	-	-	-	-	-	0.73	0.52	-	0.59	-	-	-
361	12	27	-	-	-	0.55	-	-	-	-	-	-	-	-	-	0.71	0.53	-	0.61	0.50	-	-
362	12	28	0.52	-	-	1.07	0.71	-	0.87	0.66	-	-	0.92	0.85	0.81	1.32	0.97	0.83	1.12	0.94	0.86	0.78
363	12	29	0.70	-	-	1.70	1.11	-	1.38	1.06	0.72	-	0.95	0.75	0.55	1.93	1.35	0.76	1.62	1.30	0.97	0.63
364	12	30	-	-	-	0.74	-	-	0.60	-	-	-	-	-	-	0.83	0.57	-	0.69	0.54	-	-
Number of Days Δ dv >= 0.5			22	13	9	67	38	17	52	37	20	9	37	27	20	80	62	32	71	52	34	19
Number of Days Δ dv >= 1.0			9	5	2	23	15	8	19	14	9	2	11	8	4	33	18	11	25	16	11	5
Maximum Δ dv			2.95	2.23	1.59	5.92	4.23	2.61	4.98	3.95	2.80	1.50	3.43	2.74	2.30	6.28	4.66	3.11	5.38	4.39	3.29	2.29

Table C.8.22 Bridger Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	2	-	-	-	0.75	0.51	-	0.60	-	-	-	0.92	0.90	0.89	1.27	1.04	0.89	1.13	0.99	0.90	0.89
3	1	3	-	-	-	0.54	-	-	-	-	-	-	0.52	-	-	0.83	0.68	0.51	0.73	0.63	0.52	-
4	1	4	0.50	-	-	1.12	0.83	0.53	0.90	0.69	-	-	0.62	0.52	-	1.23	0.94	0.65	1.01	0.80	0.58	-
6	1	6	3.15	2.36	1.67	6.38	4.61	2.97	5.39	4.29	3.05	1.64	3.47	2.98	2.63	6.61	4.88	3.29	5.64	4.57	3.37	2.62
7	1	7	1.78	1.35	0.98	3.72	2.60	1.56	3.08	2.40	1.66	0.86	2.36	1.95	1.60	4.20	3.13	2.14	3.59	2.93	2.24	1.49
12	1	12	-	-	-	-	-	-	-	-	-	-	-	-	-	0.55	-	-	-	-	-	-
13	1	13	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
14	1	14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.58	-	-	0.51	-	-	-
16	1	16	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
17	1	17	-	-	-	0.88	0.57	-	0.71	0.54	-	-	0.60	-	-	1.09	0.78	0.54	0.92	0.75	0.58	-
18	1	18	-	-	-	1.00	0.63	-	0.80	0.61	-	-	0.55	-	-	1.14	0.77	0.54	0.95	0.75	0.56	-
20	1	20	0.58	-	-	1.39	0.95	0.58	1.13	0.86	0.58	-	0.71	0.56	-	1.51	1.08	0.71	1.25	0.99	0.71	-
21	1	21	0.76	0.55	-	1.86	1.27	0.79	1.51	1.15	0.79	-	0.98	0.77	0.62	2.05	1.48	1.01	1.71	1.36	1.00	0.62
22	1	22	-	-	-	0.74	0.55	-	0.60	-	-	-	-	-	-	0.83	0.64	-	0.68	0.54	-	-
23	1	23	1.46	1.02	0.74	3.33	2.20	1.43	2.74	2.12	1.47	0.76	1.78	1.37	1.09	3.60	2.50	1.76	3.03	2.43	1.79	1.11
24	1	24	0.73	0.51	-	1.54	0.98	0.65	1.25	0.95	0.65	-	1.82	1.62	1.45	2.55	2.01	1.54	2.28	2.02	1.74	1.46
26	1	26	0.59	-	-	1.18	0.78	-	0.96	0.73	-	-	0.69	0.52	-	1.28	0.88	0.56	1.05	0.82	0.59	-
27	1	27	-	-	-	1.05	0.69	-	0.85	0.64	-	-	0.69	0.58	-	1.15	0.86	0.63	0.96	0.80	0.63	-
28	1	28	-	-	-	-	-	-	-	-	-	-	1.05	0.98	0.97	1.23	1.02	0.99	1.17	1.11	1.04	0.98
30	1	30	1.93	1.40	0.91	4.51	3.19	1.87	3.76	2.94	2.06	1.08	2.00	1.48	0.99	4.57	3.25	1.95	3.82	3.01	2.13	1.16
39	2	8	-	-	-	1.10	0.76	-	0.89	0.67	-	-	0.53	-	-	1.14	0.81	0.54	0.93	0.72	0.50	-
40	2	9	0.70	0.52	-	1.61	1.08	0.50	1.31	1.00	0.68	-	0.74	0.56	-	1.64	1.12	0.57	1.34	1.03	0.71	-
41	2	10	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.60	-	-	0.50	-	-	-
43	2	12	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.75	0.58	-	0.65	0.55	-	-
44	2	13	0.89	0.66	-	2.11	1.45	0.86	1.72	1.32	0.90	-	1.09	0.86	0.66	2.28	1.64	1.05	1.90	1.51	1.09	0.66
45	2	14	-	-	-	0.72	-	-	0.58	-	-	-	0.65	0.56	-	1.01	0.78	0.60	0.87	0.74	0.60	-
53	2	22	-	-	-	0.65	-	-	0.52	-	-	-	0.72	0.72	0.72	0.80	0.72	0.72	0.72	0.72	0.72	0.72
54	2	23	-	-	-	0.52	-	-	-	-	-	-	-	-	-	0.61	-	-	0.51	-	-	-
56	2	25	-	-	-	0.55	-	-	-	-	-	-	-	-	-	0.65	-	-	0.55	-	-	-
57	2	26	-	-	-	0.60	-	-	-	-	-	-	-	-	-	0.70	0.52	-	0.59	-	-	-
58	2	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	-	-	0.56	-	-	-
61	3	2	-	-	-	1.03	0.67	-	0.83	0.63	-	-	0.96	0.82	0.70	1.50	1.15	0.83	1.31	1.12	0.92	0.72
62	3	3	-	-	-	1.00	0.65	-	0.81	0.61	-	-	0.66	0.57	-	1.18	0.84	0.61	0.99	0.80	0.64	-
63	3	4	0.54	-	-	1.00	0.69	-	0.81	0.61	-	-	0.80	0.67	0.56	1.25	0.94	0.69	1.06	0.87	0.67	0.51
74	3	15	-	-	-	-	-	-	-	-	-	-	0.54	0.53	0.53	0.60	0.55	0.54	0.56	0.55	0.54	0.53
75	3	16	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	-	-	-
76	3	17	-	-	-	0.74	0.53	-	0.60	-	-	-	-	-	-	0.82	0.61	-	0.68	0.53	-	-
77	3	18	-	-	-	0.67	-	-	0.54	-	-	-	-	-	-	0.71	0.50	-	0.59	-	-	-
78	3	19	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50	-	-	-	-	-	-
84	3	25	-	-	-	0.57	-	-	-	-	-	-	-	-	-	0.65	-	-	0.54	-	-	-
85	3	26	-	-	-	0.99	0.69	-	0.80	0.60	-	-	-	-	-	1.05	0.75	-	0.86	0.67	-	-
86	3	27	0.52	-	-	1.09	0.74	-	0.88	0.67	-	-	0.76	0.62	0.50	1.31	0.97	0.68	1.11	0.90	0.69	-
87	3	28	-	-	-	0.63	-	-	0.51	-	-	-	-	-	-	0.83	0.64	-	0.71	0.59	-	-
90	3	31	-	-	-	1.09	0.75	-	0.88	0.67	-	-	0.61	-	-	1.21	0.87	-	1.00	0.79	0.58	-
91	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
92	4	2	-	-	-	0.68	-	-	0.55	-	-	-	-	-	-	0.75	0.54	-	0.62	-	-	-
108	4	18	1.04	0.75	0.52	2.42	1.63	0.96	1.98	1.52	1.04	0.53	1.07	0.79	0.56	2.45	1.66	1.00	2.01	1.55	1.07	0.57
109	4	19	1.46	1.07	0.72	3.40	2.36	1.39	2.81	2.17	1.50	0.78	1.50	1.10	0.76	3.43	2.39	1.43	2.84	2.21	1.54	0.82
116	4	26	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	-	-	0.51	-	-	-
119	4	29	-	-	-	0.56	-	-	-	-	-	-	-	-	-	0.67	-	-	0.57	-	-	-
132	5	12	-	-	-	0.89	0.67	-	0.72	0.54	-	-	0.61	0.53	-	1.11	0.89	0.52	0.94	0.77	0.60	-
198	7	17	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
201	7	20	-	-	-	0.61	-	-	-	-	-	-	-	-	-	0.62	-	-	-	-	-	-
205	7	24	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
254	9	11	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
262	9	19	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
263	9	20	-	-	-	0.61	-	-	-	-	-	-	-	-	-	0.73	0.52	-	0.61	-	-	-
265	9	22	-	-	-	1.09	0.77	-	0.88	0.67	-	-	0.54	-	-	1.16	0.84	0.54	0.95	0.74	0.52	-
266	9	23	-	-	-	0.51	-	-	-	-	-	-	-	-	-	0.67	-	-	0.57	-	-	-
268	9	25	-	-	-	0.55	-	-	-	-	-	-	-	-	-	0.60	-	-	-	-	-	-
269	9	26	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.55	-	-	-	-	-	-
274	10	1	0.77	0.55	-	1.87	1.26	0.75	1.52	1.16	0.79	-	1.03	0.82	0.64	2.10	1.50	1.01	1.76	1.41	1.05	0.67
275	10	2	-	-	-	0.61	-	-	-	-	-	-	-	-	-	0.69	0.50	-	0.57	-	-	-
279	10	6	-	-	-	0.77	0.56	-	0.62	-	-	-	-	-	-	0.83	0.62	-	0.68	0.53	-	-
280	10	7	-	-	-	0.80	0.54	-	0.64	-	-	-	0.56	-	-	0.96	0.70	0.53	0.80	0.65	0.50	-
281	10	8	-	-	-	-	-	-	-	-	-	-	0.53	-	-	0.70	0.57	-	0.61	0.54	-	-
282	10	9	0.72	0.59	-	1.54	1.15	0.76	1.25	0.95	0.64	-	0.77	0.64	0.51	1.59	1.20	0.81	1.30	1.00	0.70	-
291	10	18	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
309	11	5	0.50	-	-	1.31	0.89	0.56	1.06	0.81	0.55	-	0.69	0.56	-	1.49	1.08	0.77	1.24	0.99	0.73	-
320	11	16	-	-	-	0.94	0.68	-	0.76	0.57	-	-	-	-	-	0.99	0.73	-	0.81	0.63	-	-
322	11	18	-	-	-	0.91	0.54	-	0.74	0.56	-	-	-	-	-	0.98	0.62	-	0.80	0.62	-	-
325	11	21	-	-	-	0.60	-	-	-	-	-	-	-	-	-	0.74	0.54	-	0.63	0.51	-	-
326	11	22	-	-	-	0.64	-	-	0.51	-	-	-	0.53	-	-	0.85	0.63	-	0.72	0.60	-	-
329	11	25	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
342	12	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
349	12	15	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	-	-	-	-
351	12	17	0.50	-	-	1.01	0.68	-	0.82	0.62	-	-	0.58	-	-	1.08	0.75	-	0.89	0.69	-	-
352	12	18	1.22	0.90	0.69	2.77	1.90	1.32	2.27	1.75	1.20	0.62	1.32	1.00	0.79	2.85	1.99	1.41	2.36	1.84	1.30	0.72
353	12	19	0.94	0.70	0.56	2.04	1.36	0.93	1.66	1.27	0.87	-	1.00	0.75	0.61	2.09	1.41	0.98	1.71	1.32	0.92	-
354	12	20	0.78	0.54	-	1.71	1.06	0.51	1.39	1.06	0.72	-	0.86	0.62	-	1.79	1.14	0.60	1.47	1.14	0.81	-
355	12	21	-	-	-	0.78	0.51	-	0.63	-	-	-	-	-	-	0.84	0.57	-	0.69	0.54	-	-
356	12	22	3.26	2.46	1.77	6.44	4.64	2.88	5.45	4.34	3.09	1.66	3.78	3.03	2.37	6.82	5.09	3.42	5.86	4.80	3.62	2.27
357	12	23	1.29	0.95	0.67	2.67	1.77	0.98	2.19	1.69	1.16	0.60	1.62	1.29	1.01	2.97	2.09	1.31	2.50	2.01	1.50	0.95
358	12	24	-	-	-	0.56	-	-	-	-	-	-	-	-	-	0.65	-	-	0.54	-	-	-
359	12	25	-	-	-	-	-	-	-	-	-	-	-	-	-	0.66	0.54	-	0.59	0.52	-	-
360	12	26	-	-	-	0.77	0.53	-	0.62	-	-	-	-	-	-	0.81	0.58	-	0.66	0.51	-	-
361	12	27	-	-	-	0.61	-	-	-	-	-	-	-	-	-	0.80	0.59	-	0.68	0.56	-	-
362	12	28	0.59	-	-	1.19	0.79	-	0.96	0.73	-	-	1.02	0.95	0.90	1.47	1.08	0.92	1.25	1.04	0.95	0.87
363	12	29	0.78	0.55	-	1.89	1.23	0.56	1.54	1.18	0.80	-	1.06	0.84	0.62	2.14	1.50	0.84	1.80	1.45	1.08	0.70
364	12	30	-	-	-	0.83	0.54	-	0.67	0.50	-	-	-	-	-	0.93	0.64	-	0.77	0.61	-	-
Number of Days Δ dv >= 0.5			26	18	10	70	46	21	52	39	20	9	44	34	24	90	63	40	73	58	41	21
Number of Days Δ dv >= 1.0			9	6	2	33	17	7	20	16	9	3	16	9	6	39	24	13	29	21	15	6
Maximum Δ dv			3.26	2.46	1.77	6.44	4.64	2.97	5.45	4.34	3.09	1.66	3.78	3.03	2.63	6.82	5.09	3.42	5.86	4.80	3.62	2.62

Table C.8.23 Fitzpatrick Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	0.54	-	-	-	-	-	-	0.50	-	-	0.77	0.61	-	0.68	0.58	-	-
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	-	-	0.51	-	-	-
23	1	23	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.58	-	-	-	-	-	-
26	1	26	-	-	-	0.93	0.60	-	0.75	0.57	-	-	0.64	0.50	-	1.10	0.78	0.52	0.93	0.75	0.56	-
27	1	27	0.51	-	-	1.05	0.71	-	0.85	0.64	-	-	0.74	0.60	-	1.26	0.93	0.66	1.06	0.86	0.66	-
30	1	30	0.53	-	-	1.34	0.88	-	1.08	0.82	0.56	-	0.57	-	-	1.37	0.92	0.54	1.12	0.86	0.60	-
44	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	0.63	-	-	0.54	-	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	0.61	0.56	0.52	0.78	0.66	0.57	0.71	0.63	0.56	-
83	3	24	-	-	-	0.69	-	-	0.56	-	-	-	-	-	-	0.79	0.58	-	0.66	0.52	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	0.74	0.56	-	0.65	0.56	-	-
Number of Days Δ dv >= 0.5			2	0	0	6	3	0	4	3	1	0	5	3	1	10	7	4	9	7	4	0
Number of Days Δ dv >= 1.0			0	0	0	2	0	0	1	0	0	0	0	0	0	3	0	0	2	0	0	0
Maximum Δ dv			0.53	0.00	0.00	1.34	0.88	0.00	1.08	0.82	0.56	0.00	0.74	0.60	0.52	1.37	0.93	0.66	1.12	0.86	0.66	0.00

Table C.8.24 Fitzpatrick Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	0.62	-	-	-	-	-	-	0.58	0.51	-	0.89	0.70	0.54	0.78	0.67	0.56	-
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	0.68	0.53	-	0.59	0.50	-	-
23	1	23	-	-	-	0.58	-	-	-	-	-	-	-	-	-	0.67	-	-	0.56	-	-	-
26	1	26	0.53	-	-	1.08	0.69	-	0.87	0.66	-	-	0.74	0.58	-	1.27	0.90	0.60	1.07	0.86	0.65	-
27	1	27	0.59	-	-	1.21	0.82	-	0.98	0.74	0.50	-	0.85	0.69	0.56	1.45	1.07	0.76	1.22	1.00	0.76	0.52
30	1	30	0.61	-	-	1.54	1.01	0.58	1.25	0.95	0.64	-	0.65	-	-	1.58	1.06	0.62	1.29	0.99	0.69	-
44	2	13	-	-	-	0.55	-	-	-	-	-	-	-	-	-	0.73	0.55	-	0.63	0.52	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	0.70	0.65	0.60	0.90	0.77	0.66	0.82	0.74	0.65	0.57
83	3	24	-	-	-	0.80	0.55	-	0.65	-	-	-	0.52	-	-	0.92	0.67	-	0.76	0.61	-	-
282	10	9	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
356	12	22	-	-	-	0.53	-	-	-	-	-	-	0.54	-	-	0.82	0.63	0.50	0.72	0.62	0.52	-
357	12	23	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	0.51	-	-	-
362	12	28	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	0.51	-	-	-
Number of Days Δ dv >= 0.5			3	0	0	9	4	1	4	3	2	0	7	4	2	13	9	6	12	9	6	2
Number of Days Δ dv >= 1.0			0	0	0	3	1	0	1	0	0	0	0	0	0	3	2	0	3	1	0	0
Maximum Δ dv			0.61	0.00	0.00	1.54	1.01	0.58	1.25	0.95	0.64	0.00	0.85	0.69	0.60	1.58	1.07	0.76	1.29	1.00	0.76	0.57

Table C.8.25 Grand Teton National Park - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-
25	1	25	-	-	-	0.65	-	-	0.53	-	-	-	-	-	-	0.82	0.61	-	0.69	0.57	-	-
39	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
Number of Days Δ dv >= 0.5			0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	1	1	0	0
Number of Days Δ dv >= 1.0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Δ dv			0.00	0.00	0.00	0.65	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.61	0.00	0.69	0.57	0.00	0.00

Table C.8.26 Grand Teton National Park - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.58	-	-	0.50	-	-	-
25	1	25	-	-	-	0.66	-	-	0.53	-	-	-	-	-	-	0.83	0.62	-	0.70	0.58	-	-
39	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	-	-	-	-
Number of Days Δ dv >= 0.5			0	0	0	1	0	0	1	0	0	0	0	0	0	3	1	0	2	1	0	0
Number of Days Δ dv >= 1.0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Δ dv			0.00	0.00	0.00	0.66	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.83	0.62	0.00	0.70	0.58	0.00	0.00

Table C.8.27 Popo Agie Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	0.50	-	0.55	-	-	-
3	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.70	0.56	-	0.61	0.53	-	-
7	1	7	0.51	-	-	1.18	0.78	-	0.96	0.73	-	-	0.79	0.66	0.55	1.45	1.06	0.76	1.23	1.01	0.78	0.54
18	1	18	-	-	-	0.65	-	-	0.52	-	-	-	-	-	-	0.80	0.56	-	0.68	0.55	-	-
23	1	23	-	-	-	0.64	-	-	0.52	-	-	-	-	-	-	0.80	0.58	-	0.68	0.55	-	-
24	1	24	-	-	-	0.69	-	-	0.56	-	-	-	0.62	0.55	-	1.01	0.76	0.61	0.88	0.75	0.61	-
28	1	28	-	-	-	-	-	-	-	-	-	-	-	-	-	0.55	-	-	0.50	-	-	-
30	1	30	-	-	-	0.67	-	-	0.54	-	-	-	-	-	-	0.71	-	-	0.58	-	-	-
43	2	12	-	-	-	0.51	-	-	-	-	-	-	-	-	-	0.74	0.57	-	0.64	0.54	-	-
44	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	0.57	-	-	0.51	-	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
46	2	15	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
61	3	2	-	-	-	0.79	0.52	-	0.63	-	-	-	0.83	0.73	0.65	1.22	0.97	0.77	1.08	0.94	0.79	0.64
62	3	3	-	-	-	0.63	-	-	0.51	-	-	-	0.59	0.51	-	0.91	0.71	0.54	0.80	0.67	0.55	-
86	3	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	-	-	-	-
92	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	-	-	-
119	4	29	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.62	-	-	0.52	-	-	-
263	9	20	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	-	-	0.53	-	-	-
274	10	1	-	-	-	0.67	-	-	0.54	-	-	-	-	-	-	0.76	0.54	-	0.64	0.51	-	-
281	10	8	-	-	-	0.51	-	-	-	-	-	-	0.50	-	-	0.78	0.62	-	0.68	0.58	-	-
309	11	5	-	-	-	0.67	-	-	0.54	-	-	-	-	-	-	0.80	0.59	-	0.68	0.54	-	-
326	11	22	-	-	-	0.56	-	-	-	-	-	-	-	-	-	0.75	0.56	-	0.64	0.53	-	-
354	12	20	-	-	-	0.53	-	-	-	-	-	-	-	-	-	0.58	-	-	-	-	-	-
356	12	22	-	-	-	0.57	-	-	-	-	-	-	-	-	-	0.71	0.51	-	0.60	-	-	-
357	12	23	0.51	-	-	1.21	0.79	-	0.98	0.74	0.50	-	0.70	0.58	0.50	1.38	0.97	0.64	1.15	0.92	0.69	-
361	12	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
362	12	28	-	-	-	-	-	-	-	-	-	-	0.57	0.51	-	0.80	0.65	0.54	0.71	0.62	0.53	-
363	12	29	-	-	-	0.75	-	-	0.61	-	-	-	0.57	-	-	0.98	0.72	0.51	0.83	0.69	0.54	-
Number of Days Δ dv >= 0.5			2	0	0	17	3	0	11	2	1	0	8	6	3	28	17	7	22	15	7	2
Number of Days Δ dv >= 1.0			0	0	0	2	0	0	0	0	0	0	0	0	0	4	1	0	3	1	0	0
Maximum Δ dv			0.51	0.00	0.00	1.21	0.79	0.00	0.98	0.74	0.50	0.00	0.83	0.73	0.65	1.45	1.06	0.77	1.23	1.01	0.79	0.64

Table C.8.28 Popo Agie Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	2	-	-	-	-	-	-	-	-	-	-	0.51	-	-	0.70	0.58	-	0.63	0.56	-	-
3	1	3	-	-	-	0.51	-	-	-	-	-	-	-	-	-	0.81	0.65	0.51	0.71	0.61	0.51	-
7	1	7	0.59	-	-	1.36	0.90	0.55	1.11	0.84	0.57	-	0.92	0.76	0.64	1.67	1.22	0.88	1.42	1.16	0.90	0.63
18	1	18	-	-	-	0.75	-	-	0.60	-	-	-	-	-	-	0.93	0.65	-	0.78	0.64	-	-
23	1	23	-	-	-	0.74	-	-	0.60	-	-	-	0.53	-	-	0.92	0.67	-	0.78	0.64	-	-
24	1	24	-	-	-	0.80	-	-	0.64	-	-	-	0.72	0.64	0.57	1.16	0.88	0.70	1.01	0.86	0.71	0.57
27	1	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
28	1	28	-	-	-	-	-	-	-	-	-	-	-	-	-	0.63	0.51	-	0.58	0.53	-	-
30	1	30	-	-	-	0.77	-	-	0.62	-	-	-	-	-	-	0.82	0.54	-	0.67	0.52	-	-
43	2	12	-	-	-	0.59	-	-	-	-	-	-	0.56	-	-	0.86	0.67	0.51	0.74	0.63	0.52	-
44	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	0.67	0.54	-	0.59	0.52	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	0.52	-	0.55	0.51	-	-
46	2	15	-	-	-	-	-	-	-	-	-	-	0.52	-	-	0.61	0.55	0.51	0.58	0.54	0.51	-
60	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	0.50	-	-	-
61	3	2	-	-	-	0.91	0.60	-	0.74	0.56	-	-	0.97	0.85	0.76	1.41	1.12	0.90	1.25	1.08	0.92	0.75
62	3	3	-	-	-	0.73	-	-	0.59	-	-	-	0.69	0.59	0.51	1.06	0.83	0.63	0.92	0.78	0.64	0.50
86	3	27	-	-	-	0.51	-	-	-	-	-	-	-	-	-	0.62	-	-	0.52	-	-	-
92	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	0.50	-	-	-	-	-	-
119	4	29	-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	-	-	-	-	-	-
274	10	1	-	-	-	0.55	-	-	-	-	-	-	-	-	-	0.63	-	-	0.52	-	-	-
281	10	8	-	-	-	0.58	-	-	-	-	-	-	0.57	0.51	-	0.88	0.70	0.56	0.77	0.66	0.55	-
305	11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	-	-	-	-	-	-
309	11	5	-	-	-	0.75	0.50	-	0.60	-	-	-	-	-	-	0.89	0.65	-	0.75	0.61	-	-
322	11	18	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
326	11	22	-	-	-	0.63	-	-	0.51	-	-	-	0.51	-	-	0.83	0.62	-	0.71	0.59	-	-
354	12	20	-	-	-	0.60	-	-	-	-	-	-	-	-	-	0.64	-	-	0.53	-	-	-
356	12	22	-	-	-	0.64	-	-	0.51	-	-	-	-	-	-	0.79	0.57	-	0.67	0.55	-	-
357	12	23	0.57	-	-	1.34	0.88	0.50	1.09	0.83	0.56	-	0.78	0.65	0.56	1.53	1.08	0.71	1.28	1.03	0.77	-
361	12	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.57	-	-	0.50	-	-	-
362	12	28	-	-	-	0.52	-	-	-	-	-	-	0.64	0.57	0.52	0.90	0.73	0.60	0.80	0.70	0.60	-
363	12	29	-	-	-	0.84	0.55	-	0.68	0.51	-	-	0.64	0.53	-	1.09	0.81	0.57	0.93	0.77	0.61	-
Number of Days Δ dv >= 0.5			2	0	0	19	5	2	12	4	2	0	13	8	6	31	21	11	26	21	11	4
Number of Days Δ dv >= 1.0			0	0	0	2	0	0	2	0	0	0	0	0	0	6	3	0	4	3	0	0
Maximum Δ dv			0.59	0.00	0.00	1.36	0.90	0.55	1.11	0.84	0.57	0.00	0.97	0.85	0.76	1.67	1.22	0.90	1.42	1.16	0.92	0.75

Table C.8.29 Washakie Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
27	1	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-
Number of Days Δ dv >= 0.5			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Number of Days Δ dv >= 1.0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Δ dv			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00

Table C.8.30 Washakie Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
27	1	27	-	-	-	-	-	-	-	-	-	-	-	-	-	0.58	-	-	-	-	-	-
Number of Days Δ dv >= 0.5			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Number of Days Δ dv >= 1.0			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maximum Δ dv			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00

Table C.8.31 Wind River Roadless Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	0.67	0.52	-	0.58	-	-	-
16	1	16	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	0.55	-	0.56	0.52	-	-
23	1	23	-	-	-	-	-	-	-	-	-	-	-	-	-	0.53	-	-	-	-	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	-	-	0.52	-	-	-
26	1	26	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.67	0.51	-	0.57	-	-	-
27	1	27	-	-	-	0.65	-	-	0.52	-	-	-	0.54	-	-	0.87	0.66	-	0.75	0.62	-	-
30	1	30	-	-	-	1.06	0.69	-	0.85	0.65	-	-	-	-	-	1.10	0.73	-	0.89	0.69	-	-
44	2	13	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.75	0.57	-	0.65	0.55	-	-
45	2	14	-	-	-	0.63	-	-	0.50	-	-	-	0.96	0.88	0.80	1.23	1.04	0.88	1.11	1.00	0.88	0.76
61	3	2	-	-	-	-	-	-	-	-	-	-	0.62	0.56	0.51	0.88	0.72	0.59	0.79	0.70	0.61	0.51
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.69	0.54	-	0.60	0.50	-	-
74	3	15	-	-	-	-	-	-	-	-	-	-	0.61	0.58	0.57	0.69	0.60	0.57	0.66	0.63	0.60	0.57
83	3	24	-	-	-	0.50	-	-	-	-	-	-	-	-	-	0.59	-	-	-	-	-	-
263	9	20	-	-	-	-	-	-	-	-	-	-	-	-	-	0.59	-	-	0.53	-	-	-
274	10	1	-	-	-	-	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-
280	10	7	-	-	-	0.53	-	-	-	-	-	-	-	-	-	0.64	-	-	0.54	-	-	-
281	10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	0.74	0.59	-	0.65	0.56	-	-
351	12	17	-	-	-	0.70	0.54	-	0.56	-	-	-	-	-	-	0.75	0.59	-	0.62	-	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	0.66	0.50	-	0.57	-	-	-
357	12	23	-	-	-	0.63	-	-	0.51	-	-	-	0.58	0.51	-	0.84	0.66	0.52	0.72	0.60	-	-
362	12	28	-	-	-	0.73	-	-	0.59	-	-	-	1.07	0.97	0.89	1.39	1.15	0.95	1.26	1.13	1.00	0.86
nber of Days Δ dv >= 0.5			0	0	0	10	2	0	6	1	0	0	6	5	4	22	15	5	18	11	4	4
nber of Days Δ dv >= 1.0			0	0	0	1	0	0	0	0	0	0	1	0	0	3	2	0	2	2	1	0
Maximum Δ dv			0.00	0.00	0.00	1.06	0.69	0.00	0.85	0.65	0.00	0.00	1.07	0.97	0.89	1.39	1.15	0.95	1.26	1.13	1.00	0.86

Table C.8.32 Wind River Roadless Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	-	-	0.53	-	-	-
7	1	7	-	-	-	0.52	-	-	-	-	-	-	-	-	-	0.77	0.61	-	0.68	0.57	-	-
16	1	16	-	-	-	-	-	-	-	-	-	-	0.57	0.54	0.51	0.71	0.63	0.57	0.65	0.60	0.54	-
23	1	23	-	-	-	-	-	-	-	-	-	-	-	-	-	0.61	-	-	0.51	-	-	-
24	1	24	-	-	-	0.54	-	-	-	-	-	-	-	-	-	0.71	-	-	0.60	-	-	-
26	1	26	-	-	-	0.62	-	-	0.50	-	-	-	-	-	-	0.77	0.59	-	0.66	0.54	-	-
27	1	27	-	-	-	0.75	-	-	0.60	-	-	-	0.63	0.53	-	1.00	0.76	0.58	0.86	0.72	0.57	-
30	1	30	-	-	-	1.22	0.80	-	0.98	0.75	0.50	-	0.54	-	-	1.26	0.84	0.52	1.03	0.79	0.55	-
44	2	13	-	-	-	0.62	-	-	0.50	-	-	-	0.54	-	-	0.88	0.67	0.51	0.76	0.64	0.51	-
45	2	14	-	-	-	0.73	-	-	0.59	-	-	-	1.12	1.01	0.92	1.42	1.20	1.02	1.29	1.15	1.02	0.88
61	3	2	-	-	-	0.57	-	-	-	-	-	-	0.72	0.65	0.59	1.02	0.84	0.68	0.92	0.81	0.70	0.59
62	3	3	-	-	-	0.56	-	-	-	-	-	-	0.51	-	-	0.80	0.62	-	0.69	0.58	-	-
74	3	15	-	-	-	-	-	-	-	-	-	-	0.70	0.67	0.66	0.80	0.69	0.66	0.77	0.73	0.70	0.67
83	3	24	-	-	-	0.59	-	-	-	-	-	-	-	-	-	0.69	0.51	-	0.57	-	-	-
280	10	7	-	-	-	0.60	-	-	-	-	-	-	-	-	-	0.72	0.53	-	0.61	-	-	-
281	10	8	-	-	-	0.54	-	-	-	-	-	-	0.55	-	-	0.83	0.67	0.54	0.73	0.63	0.52	-
309	11	5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	-	-	-	-	-	-
325	11	21	-	-	-	-	-	-	-	-	-	-	-	-	-	0.51	-	-	-	-	-	-
351	12	17	-	-	-	0.78	0.60	-	0.63	-	-	-	-	-	-	0.84	0.66	-	0.69	0.54	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	0.73	0.56	-	0.64	0.54	-	-
357	12	23	-	-	-	0.70	-	-	0.57	-	-	-	0.65	0.57	0.52	0.94	0.74	0.58	0.81	0.68	0.55	-
362	12	28	-	-	-	0.82	0.53	-	0.66	-	-	-	1.19	1.08	0.99	1.54	1.28	1.06	1.40	1.26	1.11	0.96
Number of Days Δ dv >= 0.5			0	0	0	15	3	0	8	1	1	0	11	7	6	22	17	10	20	15	10	4
Number of Days Δ dv >= 1.0			0	0	0	1	0	0	0	0	0	0	2	2	0	5	2	2	3	2	2	0
Maximum Δ dv			0.00	0.00	0.00	1.22	0.80	0.00	0.98	0.75	0.50	0.00	1.19	1.08	0.99	1.54	1.28	1.06	1.40	1.26	1.11	0.96

Table C.9.1 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Low Emissions WDR250

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	1.64	2	1.89	4
Big Sandy	2.64	17	2.92	21
Boulder	2.01	7	2.30	10
Bronx	1.40	1	1.60	1
Cora	2.66	1	3.03	1
Daniel	2.12	1	2.42	1
Farson	1.93	5	2.21	5
Labarge	1.10	2	1.27	2
Merna	0.65	0	0.75	0
Pinedale	3.60	2	4.07	3

[1] Δdv = change in deciview.

Table C.9.2 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Low Emissions WDR150

Receptor Area	FLAG Background Data		IMPROVE Background Data	
	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	1.21	1	1.40	2
Big Sandy	1.97	8	2.18	13
Boulder	1.46	3	1.67	4
Bronx	1.01	1	1.16	1
Cora	1.95	1	2.23	1
Daniel	1.54	1	1.77	1
Farson	1.36	3	1.57	5
Labarge	0.78	0	0.90	0
Merna	0.48	0	0.55	0
Pinedale	2.69	1	3.07	2

[1] Δdv = change in deciview.

Table C.9.3 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Low Emissions WDR075

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	0.85	0	0.98	0
Big Sandy	1.43	2	1.58	3
Boulder	0.98	0	1.12	2
Bronx	0.66	0	0.76	0
Cora	1.28	1	1.47	1
Daniel	1.01	1	1.17	1
Farson	0.92	0	1.06	2
Labarge	0.51	0	0.59	0
Merna	0.32	0	0.37	0
Pinedale	1.83	1	2.09	1

[1] Δdv = change in deciview.

Table C.9.4 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative High Emissions WDR250

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	3.45	21	3.93	18
Big Sandy	5.28	56	5.76	62
Boulder	4.06	33	4.58	30
Bronx	3.37	7	3.82	9
Cora	6.00	11	6.70	14
Daniel	4.89	16	5.50	15
Farson	4.33	10	4.88	13
Labarge	2.27	6	2.59	5
Merna	1.43	4	1.64	5
Pinedale	7.66	18	8.48	21

[1] Δdv = change in deciview.

Table C.9.5 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative High Emissions WDR150

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.36	11	2.71	13
Big Sandy	3.76	29	4.13	33
Boulder	2.84	21	3.23	21
Bronx	2.34	1	2.67	1
Cora	4.32	3	4.87	5
Daniel	3.46	3	3.92	5
Farson	2.96	8	3.37	8
Labarge	1.52	2	1.74	4
Merna	0.98	0	1.13	2
Pinedale	5.67	7	6.34	8

[1] Δdv = change in deciview.

Table C.9.6 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative High Emissions WDR075

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	1.35	2	1.56	2
Big Sandy	2.49	16	2.75	20
Boulder	1.75	7	2.01	7
Bronx	1.35	1	1.56	1
Cora	2.58	1	2.94	1
Daniel	2.04	1	2.33	1
Farson	1.87	4	2.14	5
Labarge	0.88	0	1.02	1
Merna	0.57	0	0.66	0
Pinedale	3.52	1	3.98	2

[1] Δdv = change in deciview.

Table C.9.7 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 20% Emissions Reduction WDR250

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.85	16	3.25	16
Big Sandy	4.42	38	4.84	45
Boulder	3.37	25	3.82	26
Bronx	2.78	1	3.16	2
Cora	5.06	6	5.68	9
Daniel	4.09	9	4.61	13
Farson	3.60	8	4.08	10
Labarge	1.85	5	2.12	4
Merna	1.16	2	1.34	3
Pinedale	6.53	14	7.27	16

[1] Δdv = change in deciview.

Table C.9.8 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 40% Emissions Reduction WDR250

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.21	8	2.53	12
Big Sandy	3.48	28	3.83	27
Boulder	2.63	17	2.99	21
Bronx	2.15	1	2.46	1
Cora	4.01	1	4.53	3
Daniel	3.21	2	3.64	4
Farson	2.82	7	3.20	8
Labarge	1.42	2	1.63	3
Merna	0.88	0	1.02	1
Pinedale	5.25	5	5.89	6

[1] Δdv = change in deciview.

Table C.9.9 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 60% Emissions Reduction WDR250

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	1.53	2	1.76	2
Big Sandy	2.45	17	2.71	19
Boulder	1.83	8	2.09	9
Bronx	1.48	1	1.70	1
Cora	2.85	1	3.24	1
Daniel	2.25	1	2.57	1
Farson	1.96	5	2.25	5
Labarge	0.97	0	1.12	2
Merna	0.60	0	0.69	0
Pinedale	3.79	2	4.28	3

[1] Δdv = change in deciview.

Table C.9.10 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 80% Emissions Reduction WDR250

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	0.79	0	0.92	0
Big Sandy	1.30	1	1.45	4
Boulder	0.95	0	1.10	2
Bronx	0.77	0	0.89	0
Cora	1.52	1	1.75	1
Daniel	1.19	1	1.37	1
Farson	1.03	1	1.19	1
Labarge	0.50	0	0.57	0
Merna	0.30	0	0.35	0
Pinedale	2.07	1	2.37	1

[1] Δdv = change in deciview.

Table C.9.11 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Low Emissions WDR250 and Regional Sources

Receptor Area	FLAG Background Data		IMPROVE Background Data	
	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.25	16	2.57	19
Big Sandy	3.16	31	3.48	32
Boulder	3.17	18	3.60	20
Bronx	1.46	1	1.68	1
Cora	2.75	6	3.13	7
Daniel	2.20	6	2.52	11
Farson	2.42	11	2.68	11
Labarge	2.50	9	2.85	11
Merna	0.99	0	1.11	4
Pinedale	3.70	8	4.18	8

[1] Δdv = change in deciview.

Table C.9.12 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Low Emissions WDR150 and Regional Sources

Receptor Area	FLAG Background Data		IMPROVE Background Data	
	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.09	13	2.39	15
Big Sandy	2.51	17	2.78	23
Boulder	2.88	11	3.27	11
Bronx	1.08	1	1.24	1
Cora	2.04	2	2.34	5
Daniel	1.63	1	1.87	6
Farson	1.94	10	2.22	10
Labarge	2.24	6	2.56	9
Merna	0.96	0	1.07	1
Pinedale	2.80	8	3.19	8

[1] Δdv = change in deciview.

Table C.9.13 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Low Emissions WDR075 and Regional Sources

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.04	9	2.33	13
Big Sandy	2.00	10	2.22	13
Boulder	2.78	7	3.16	9
Bronx	0.73	0	0.84	0
Cora	1.38	1	1.58	3
Daniel	1.11	1	1.27	1
Farson	1.71	10	1.96	10
Labarge	2.02	6	2.31	6
Merna	0.94	0	1.04	1
Pinedale	1.94	5	2.23	7

[1] Δdv = change in deciview.

Table C.9.14 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative High Emissions WDR250 and Regional Sources

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	3.81	34	4.32	36
Big Sandy	5.67	64	6.18	74
Boulder	4.97	39	5.58	40
Bronx	3.42	12	3.88	15
Cora	6.07	16	6.77	17
Daniel	4.95	21	5.56	23
Farson	4.49	19	5.05	21
Labarge	3.51	15	3.97	16
Merna	1.68	9	1.93	10
Pinedale	7.73	23	8.56	27

[1] Δdv = change in deciview.

Table C.9.15 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative High Emissions WDR150 and Regional Sources

Receptor Area	FLAG Background Data		IMPROVE Background Data	
	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv (days)
Big Piney	2.76	24	3.16	25
Big Sandy	4.22	43	4.63	50
Boulder	3.87	28	4.38	26
Bronx	2.40	2	2.73	5
Cora	4.40	12	4.96	13
Daniel	3.54	14	4.00	16
Farson	3.14	12	3.56	15
Labarge	2.86	11	3.25	14
Merna	1.26	5	1.45	6
Pinedale	5.75	16	6.43	18

[1] Δdv = change in deciview.

Table C.9.16 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative High Emissions WDR075 and Regional Sources

Receptor Area	FLAG Background Data		IMPROVE Background Data	
	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.11	13	2.41	18
Big Sandy	3.01	25	3.32	29
Boulder	2.87	14	3.27	15
Bronx	1.42	1	1.63	1
Cora	2.67	2	3.04	7
Daniel	2.13	3	2.43	7
Farson	2.09	10	2.39	11
Labarge	2.33	6	2.66	9
Merna	0.97	0	1.08	1
Pinedale	3.62	8	4.09	8

[1] Δdv = change in deciview.

Table C.9.17 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 20% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	3.23	28	3.68	30
Big Sandy	4.85	53	5.30	59
Boulder	4.36	34	4.91	32
Bronx	2.83	6	3.22	12
Cora	5.13	13	5.75	16
Daniel	4.15	16	4.69	19
Farson	3.77	15	4.26	19
Labarge	3.14	14	3.57	14
Merna	1.42	6	1.64	9
Pinedale	6.60	19	7.35	21

[1] Δdv = change in deciview.

Table C.9.18 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 40% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.61	21	2.99	24
Big Sandy	3.96	35	4.34	40
Boulder	3.71	25	4.20	22
Bronx	2.21	1	2.53	5
Cora	4.09	7	4.62	12
Daniel	3.29	14	3.73	16
Farson	2.99	12	3.40	14
Labarge	2.77	11	3.15	12
Merna	1.16	4	1.35	6
Pinedale	5.34	14	5.98	15

[1] Δdv = change in deciview.

Table C.9.19 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 60% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	2.20	14	2.51	17
Big Sandy	2.97	27	3.28	30
Boulder	3.02	16	3.43	17
Bronx	1.55	1	1.78	1
Cora	2.93	6	3.33	7
Daniel	2.33	3	2.66	9
Farson	2.16	10	2.46	11
Labarge	2.40	7	2.74	9
Merna	0.97	0	1.08	2
Pinedale	3.89	8	4.39	9

[1] Δdv = change in deciview.

Table C.9.20 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Preferred Alternative Mitigation 80% Emissions Reduction WDR250 and Regional Sources

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	1.99	8	2.28	13
Big Sandy	1.88	9	2.13	12
Boulder	2.72	6	3.09	9
Bronx	0.84	0	0.97	0
Cora	1.62	1	1.86	2
Daniel	1.28	1	1.47	2
Farson	1.63	8	1.87	10
Labarge	2.02	6	2.30	6
Merna	0.93	0	1.03	1
Pinedale	2.19	5	2.50	6

[1] Δdv = change in deciview.

Table C.9.21 Big Piney - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	1.97	1.33	-	1.61	1.23	-	-	1.40	1.16	-	2.38	1.77	1.21	2.03	1.67	1.29	-
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16	-	-	1.01	-	-	-
20	1	20	-	-	-	-	-	-	-	-	-	-	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
21	1	21	-	-	-	1.58	1.06	-	1.28	-	-	-	1.33	1.14	-	2.09	1.63	1.22	1.83	1.55	1.27	-
22	1	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05	-	-	-	-	-	-
23	1	23	-	-	-	2.01	1.29	-	1.64	1.25	-	-	2.25	2.00	1.82	3.20	2.58	2.11	2.88	2.55	2.20	1.84
24	1	24	-	-	-	-	-	-	-	-	-	-	2.16	2.09	2.04	2.32	2.18	2.09	2.24	2.16	2.08	1.99
28	1	28	-	-	-	-	-	-	-	-	-	-	1.14	1.12	1.10	1.20	1.15	1.12	1.17	1.15	1.12	1.09
39	2	8	-	-	-	1.32	-	-	1.07	-	-	-	-	-	-	1.40	-	-	1.15	-	-	-
40	2	9	-	-	-	1.72	1.13	-	1.40	1.07	-	-	1.11	-	-	1.98	1.40	-	1.66	1.34	1.01	-
44	2	13	-	-	-	1.89	1.24	-	1.54	1.18	-	-	1.40	1.20	1.03	2.37	1.76	1.30	2.03	1.70	1.37	1.02
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	-	-	1.04	-	-	-
61	3	2	1.64	1.21	-	3.45	2.36	1.35	2.85	2.21	1.53	-	2.07	1.67	1.33	3.81	2.76	1.81	3.23	2.61	1.96	1.29
62	3	3	1.32	-	-	2.64	1.73	1.21	2.17	1.67	1.14	-	1.47	1.08	-	2.78	1.88	1.37	2.31	1.82	1.30	-
87	3	28	-	-	-	1.49	1.01	-	1.21	-	-	-	-	-	-	1.76	1.29	-	1.48	1.20	-	-
88	3	29	-	-	-	1.48	1.02	-	1.20	-	-	-	-	-	-	1.53	1.08	-	1.25	-	-	-
109	4	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34	1.01	-	1.17	1.00	-	-
118	4	28	-	-	-	1.05	-	-	-	-	-	-	-	-	-	1.25	-	-	1.06	-	-	-
124	5	4	-	-	-	1.45	-	-	1.18	-	-	-	1.11	-	-	1.79	1.28	-	1.53	1.26	-	-
147	5	27	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.17	-	-	-	-	-	-
213	8	1	-	-	-	1.05	-	-	-	-	-	-	-	-	-	1.19	-	-	-	-	-	-
216	8	4	-	-	-	-	-	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-
217	8	5	-	-	-	1.40	-	-	1.14	-	-	-	-	-	-	1.61	1.14	-	1.35	1.08	-	-
252	9	9	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
264	9	21	-	-	-	1.00	-	-	-	-	-	-	-	-	-	1.35	1.04	-	1.16	-	-	-
351	12	17	-	-	-	1.68	1.26	-	1.37	1.04	-	-	-	-	-	1.79	1.38	-	1.48	1.16	-	-
352	12	18	-	-	-	1.40	-	-	1.14	-	-	-	-	-	-	1.48	1.00	-	1.22	-	-	-
353	12	19	-	-	-	1.52	-	-	1.23	-	-	-	-	-	-	1.68	1.13	-	1.40	1.11	-	-
354	12	20	-	-	-	-	-	-	-	-	-	-	1.15	1.04	-	1.48	1.19	1.02	1.36	1.23	1.10	-
355	12	21	-	-	-	1.12	-	-	-	-	-	-	1.01	-	-	1.62	1.22	-	1.41	1.21	-	-
356	12	22	-	-	-	1.71	1.14	-	1.39	1.06	-	-	1.71	1.50	1.32	2.55	2.03	1.58	2.26	1.96	1.64	1.32
357	12	23	-	-	-	-	-	-	-	-	-	-	1.22	1.11	1.03	1.37	1.20	1.08	1.25	1.14	1.03	-
358	12	24	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05	-	-	-	-	-	-
361	12	27	-	-	-	-	-	-	-	-	-	-	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Number of Days Δ dv >= 1.0			2	1	0	21	11	2	16	8	2	0	16	13	9	34	24	13	28	21	14	8
Maximum Δ dv			1.64	1.21	0.00	3.45	2.36	1.35	2.85	2.21	1.53	0.00	2.25	2.09	2.04	3.81	2.76	2.11	3.23	2.61	2.20	1.99

Table C.9.22 Big Piney - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	1	3	-	-	-	-	-	-	-	-	-	-	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
6	1	6	1.09	-	-	2.26	1.53	-	1.84	1.41	-	-	1.61	1.33	1.09	2.72	2.03	1.39	2.33	1.91	1.49	1.04
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34	1.05	-	1.17	-	-	-
20	1	20	-	-	-	-	-	-	-	-	-	-	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46	1.46
21	1	21	-	-	-	1.81	1.22	-	1.47	1.12	-	-	1.52	1.32	1.14	2.39	1.87	1.41	2.09	1.78	1.47	1.13
22	1	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.21	-	-	1.05	-	-	-
23	1	23	1.04	-	-	2.30	1.48	-	1.88	1.44	-	-	2.57	2.29	2.08	3.64	2.94	2.41	3.28	2.90	2.51	2.11
24	1	24	-	-	-	-	-	-	-	-	-	-	2.47	2.39	2.33	2.65	2.49	2.39	2.56	2.47	2.37	2.28
28	1	28	-	-	-	-	-	-	-	-	-	-	1.31	1.29	1.27	1.38	1.33	1.29	1.35	1.32	1.29	1.26
39	2	8	-	-	-	1.53	-	-	1.24	-	-	-	-	-	-	1.62	1.09	-	1.33	1.04	-	-
40	2	9	-	-	-	1.98	1.30	-	1.62	1.24	-	-	1.28	1.01	-	2.27	1.61	1.11	1.92	1.55	1.16	-
43	2	12	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
44	2	13	-	-	-	2.17	1.44	-	1.77	1.36	-	-	1.62	1.38	1.20	2.71	2.03	1.50	2.34	1.96	1.58	1.18
45	2	14	-	-	-	1.08	-	-	-	-	-	-	-	-	-	1.41	1.06	-	1.21	1.00	-	-
61	3	2	1.88	1.40	-	3.92	2.71	1.56	3.25	2.53	1.76	-	2.37	1.92	1.54	4.32	3.15	2.08	3.68	2.99	2.25	1.49
62	3	3	1.52	1.06	-	3.02	1.99	1.39	2.49	1.92	1.32	-	1.70	1.25	-	3.18	2.16	1.58	2.65	2.09	1.50	-
87	3	28	-	-	-	1.72	1.17	-	1.39	1.06	-	-	1.11	-	-	2.02	1.49	1.02	1.71	1.39	1.06	-
88	3	29	-	-	-	1.70	1.18	-	1.38	1.06	-	-	-	-	-	1.76	1.25	-	1.45	1.12	-	-
89	3	30	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05	-	-	-	-	-	-
109	4	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	-	-	1.06	-	-	-
118	4	28	-	-	-	-	-	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-
124	5	4	-	-	-	1.32	-	-	1.07	-	-	-	1.01	-	-	1.63	1.17	-	1.39	1.14	-	-
147	5	27	-	-	-	-	-	-	-	-	-	-	-	-	-	1.07	-	-	-	-	-	-
217	8	5	-	-	-	1.18	-	-	-	-	-	-	-	-	-	1.35	-	-	1.13	-	-	-
264	9	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
325	11	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	-	-	-	-
351	12	17	-	-	-	1.87	1.40	-	1.52	1.16	-	-	1.06	-	-	1.99	1.53	1.01	1.65	1.29	-	-
352	12	18	-	-	-	1.56	1.03	-	1.27	-	-	-	-	-	-	1.65	1.12	-	1.36	1.06	-	-
353	12	19	-	-	-	1.69	1.08	-	1.37	1.05	-	-	-	-	-	1.86	1.26	-	1.55	1.23	-	-
354	12	20	-	-	-	-	-	-	-	-	-	-	1.27	1.15	1.08	1.65	1.33	1.13	1.51	1.37	1.22	1.08
355	12	21	-	-	-	1.24	-	-	1.00	-	-	-	1.12	-	-	1.79	1.36	1.07	1.57	1.34	1.11	-
356	12	22	-	-	-	1.90	1.27	-	1.55	1.18	-	-	1.90	1.66	1.46	2.82	2.25	1.76	2.50	2.17	1.82	1.47
357	12	23	-	-	-	-	-	-	-	-	-	-	1.35	1.24	1.14	1.52	1.34	1.20	1.39	1.27	1.14	1.02
358	12	24	-	-	-	-	-	-	-	-	-	-	-	-	-	1.17	-	-	1.03	-	-	-
360	12	26	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05	-	-	1.02	-	-	-
361	12	27	-	-	-	-	-	-	-	-	-	-	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
Number of Days Δ dv >= 1.0			4	2	0	18	13	2	16	12	2	0	19	15	13	36	25	18	30	24	17	13
Maximum Δ dv			1.88	1.40	0.00	3.92	2.71	1.56	3.25	2.53	1.76	0.00	2.57	2.39	2.33	4.32	3.15	2.41	3.68	2.99	2.51	2.28

Table C.9.23 Big Sandy - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	2	-	-	-	1.27	-	-	1.03	-	-	-	1.23	1.10	-	1.84	1.49	1.12	1.62	1.38	1.14	-
3	1	3	-	-	-	1.09	-	-	-	-	-	-	1.01	-	-	1.55	1.24	-	1.35	1.14	-	-
4	1	4	-	-	-	1.94	1.43	1.07	1.58	1.21	-	-	1.14	-	-	2.17	1.68	1.33	1.82	1.46	1.09	-
6	1	6	-	-	-	2.00	1.41	1.10	1.63	1.25	-	-	1.02	-	-	2.13	1.56	1.25	1.77	1.39	1.00	-
7	1	7	1.54	1.15	-	3.30	2.29	1.40	2.72	2.11	1.46	-	2.14	1.77	1.46	3.81	2.85	1.99	3.26	2.68	2.06	1.40
17	1	17	-	-	-	1.62	1.09	-	1.32	1.01	-	-	1.03	-	-	1.91	1.39	-	1.61	1.31	-	-
20	1	20	-	-	-	1.09	-	-	-	-	-	-	1.15	-	-	1.56	1.27	1.15	1.36	1.16	-	-
22	1	22	1.20	-	-	2.60	1.96	1.27	2.13	1.64	1.12	-	1.30	1.07	-	2.69	2.06	1.37	2.22	1.74	1.22	-
23	1	23	1.85	1.31	-	4.08	2.74	1.32	3.38	2.64	1.83	-	2.28	1.76	1.26	4.42	3.13	1.75	3.76	3.04	2.27	1.43
24	1	24	1.41	1.02	-	3.14	2.22	1.53	2.59	2.00	1.38	-	2.19	1.86	1.55	3.82	2.98	2.28	3.31	2.76	2.19	1.58
28	1	28	1.38	-	-	3.12	1.87	1.12	2.57	1.99	1.37	-	2.45	2.05	1.81	4.04	2.90	2.22	3.54	3.01	2.45	1.86
30	1	30	1.10	-	-	2.46	1.62	-	2.01	1.55	1.06	-	1.45	1.15	-	2.76	1.95	1.31	2.33	1.88	1.41	-
39	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-	1.03	-	-	-	-	-	-
40	2	9	-	-	-	1.32	-	-	1.07	-	-	-	-	-	-	1.35	-	-	1.10	-	-	-
41	2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
44	2	13	1.07	-	-	2.50	1.70	-	2.05	1.57	1.08	-	1.26	-	-	2.67	1.88	1.18	2.23	1.76	1.27	-
53	2	22	-	-	-	1.37	-	-	1.11	-	-	-	-	-	-	1.57	1.11	-	1.32	1.06	-	-
54	2	23	-	-	-	1.13	-	-	-	-	-	-	-	-	-	1.36	1.01	-	1.15	-	-	-
55	2	24	-	-	-	1.08	-	-	-	-	-	-	-	-	-	1.17	-	-	-	-	-	-
56	2	25	-	-	-	1.00	-	-	-	-	-	-	-	-	-	1.22	1.02	-	1.03	-	-	-
57	2	26	-	-	-	1.01	-	-	-	-	-	-	-	-	-	1.17	-	-	-	-	-	-
60	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.26	-	-	1.08	-	-	-
61	3	2	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.37	1.03	-	1.18	-	-	-
63	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
85	3	26	-	-	-	1.06	-	-	-	-	-	-	-	-	-	1.18	-	-	-	-	-	-
86	3	27	-	-	-	2.08	1.44	-	1.70	1.30	-	-	1.24	1.01	-	2.35	1.73	1.07	1.98	1.59	1.19	-
90	3	31	1.74	1.30	-	3.89	2.71	1.53	3.23	2.51	1.74	-	1.89	1.45	1.05	4.01	2.85	1.68	3.35	2.65	1.89	1.07
91	4	1	-	-	-	1.05	-	-	-	-	-	-	-	-	-	1.23	-	-	1.03	-	-	-
92	4	2	-	-	-	1.94	1.37	-	1.58	1.21	-	-	1.06	-	-	2.11	1.54	-	1.75	1.38	1.00	-
93	4	3	-	-	-	1.41	-	-	1.15	-	-	-	-	-	-	1.62	1.12	-	1.36	1.09	-	-
115	4	25	-	-	-	1.24	-	-	1.01	-	-	-	-	-	-	1.36	1.03	-	1.12	-	-	-
116	4	26	-	-	-	1.68	1.11	-	1.37	1.04	-	-	1.01	-	-	1.95	1.39	-	1.64	1.33	1.00	-
119	4	29	-	-	-	1.32	-	-	1.07	-	-	-	-	-	-	1.49	1.07	-	1.25	-	-	-
132	5	12	-	-	-	1.16	-	-	-	-	-	-	-	-	-	1.41	1.05	-	1.19	-	-	-
184	7	3	-	-	-	1.24	-	-	1.00	-	-	-	-	-	-	1.28	-	-	1.04	-	-	-
263	9	20	1.17	-	-	2.62	1.78	1.01	2.14	1.65	1.13	-	1.30	-	-	2.73	1.90	1.14	2.26	1.77	1.26	-
265	9	22	-	-	-	1.06	-	-	-	-	-	-	-	-	-	1.16	-	-	-	-	-	-
266	9	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
273	9	30	1.35	-	-	2.97	2.04	1.22	2.44	1.88	1.30	-	1.59	1.23	-	3.17	2.26	1.46	2.66	2.11	1.54	-
274	10	1	1.71	1.24	-	3.82	2.65	1.65	3.17	2.46	1.71	-	2.06	1.62	1.26	4.11	2.98	2.01	3.47	2.79	2.06	1.27
279	10	6	-	-	-	1.15	-	-	-	-	-	-	-	-	-	1.23	-	-	1.01	-	-	-
281	10	8	-	-	-	1.21	-	-	-	-	-	-	-	-	-	1.54	1.10	-	1.31	1.09	-	-
282	10	9	-	-	-	1.37	1.05	-	1.11	-	-	-	-	-	-	1.44	1.12	-	1.18	-	-	-
297	10	24	-	-	-	1.18	-	-	-	-	-	-	-	-	-	1.35	-	-	1.13	-	-	-
309	11	5	-	-	-	1.76	1.37	-	1.44	1.10	-	-	1.07	-	-	2.03	1.65	-	1.71	1.38	1.04	-
320	11	16	-	-	-	2.19	1.29	-	1.79	1.37	-	-	1.01	-	-	2.26	1.36	-	1.86	1.44	1.01	-
322	11	18	-	-	-	1.32	-	-	1.07	-	-	-	-	-	-	1.39	-	-	1.14	-	-	-
325	11	21	-	-	-	1.20	-	-	-	-	-	-	-	-	-	1.27	-	-	1.04	-	-	-
326	11	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.20	-	-	1.04	-	-	-
338	12	4	-	-	-	1.14	-	-	-	-	-	-	-	-	-	1.27	-	-	1.05	-	-	-
341	12	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
350	12	16	-	-	-	1.05	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
352	12	18	-	-	-	2.21	1.49	1.04	1.81	1.38	-	-	1.04	-	-	2.29	1.57	1.13	1.89	1.47	1.03	-
353	12	19	-	-	-	1.42	-	-	1.15	-	-	-	-	-	-	1.47	1.01	-	1.20	-	-	-
354	12	20	1.43	-	-	3.38	2.22	-	2.79	2.16	1.49	-	1.52	1.08	-	3.46	2.31	1.07	2.87	2.25	1.58	-
355	12	21	-	-	-	2.07	1.53	-	1.69	1.29	-	-	-	-	-	2.18	1.64	1.07	1.80	1.41	1.00	-
356	12	22	2.64	1.97	1.42	5.28	3.76	2.49	4.42	3.48	2.45	1.30	3.15	2.51	2.00	5.67	4.22	3.01	4.85	3.96	2.97	1.88
357	12	23	1.88	1.40	1.04	4.06	2.85	1.89	3.37	2.63	1.83	-	2.26	1.79	1.45	4.36	3.19	2.27	3.69	2.98	2.20	1.36
359	12	25	1.14	-	-	2.34	1.77	-	1.92	1.47	1.00	-	1.58	1.36	1.09	2.73	2.18	1.39	2.32	1.90	1.45	-
360	12	26	1.24	-	-	2.72	2.05	1.11	2.23	1.72	1.18	-	1.42	1.17	-	2.87	2.21	1.30	2.39	1.89	1.36	-
361	12	27	-	-	-	1.21	-	-	-	-	-	-	1.00	-	-	1.58	1.17	-	1.36	1.14	-	-
362	12	28	-	-	-	1.62	1.15	-	1.31	1.00	-	-	1.16	-	-	1.89	1.44	1.11	1.60	1.29	-	-
363	12	29	1.59	1.17	-	3.57	2.46	1.51	2.95	2.29	1.59	-	2.12	1.73	1.40	4.01	2.95	2.04	3.42	2.79	2.12	1.40
364	12	30	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-
Number of Days Δ dv >= 1.0			17	8	2	56	29	16	38	28	17	1	31	17	10	64	43	25	53	35	27	9
Maximum Δ dv			2.64	1.97	1.42	5.28	3.76	2.49	4.42	3.48	2.45	1.30	3.15	2.51	2.00	5.67	4.22	3.01	4.85	3.96	2.97	1.88

Table C.9.24 Big Sandy - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	2	1.18	-	-	1.89	1.45	-	1.54	1.18	-	-	1.85	1.68	1.51	2.52	2.11	1.67	2.19	1.85	1.50	1.13
3	1	3	1.06	-	-	1.65	1.27	-	1.34	1.02	-	-	1.54	1.39	1.24	2.11	1.74	1.36	1.82	1.52	1.22	-
2	1	2	-	-	-	1.46	1.04	-	1.19	-	-	-	1.41	1.27	1.12	2.11	1.71	1.29	1.85	1.59	1.32	1.04
3	1	3	-	-	-	1.25	-	-	1.02	-	-	-	1.16	1.04	-	1.77	1.43	1.03	1.55	1.32	1.08	-
4	1	4	1.01	-	-	2.22	1.64	1.23	1.81	1.39	-	-	1.31	1.10	-	2.48	1.92	1.53	2.09	1.68	1.25	-
6	1	6	1.01	-	-	2.29	1.62	1.27	1.87	1.43	-	-	1.18	-	-	2.44	1.79	1.43	2.03	1.60	1.15	-
7	1	7	1.77	1.33	-	3.75	2.61	1.61	3.10	2.41	1.67	-	2.45	2.03	1.67	4.30	3.24	2.28	3.70	3.05	2.35	1.61
13	1	13	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
14	1	14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
17	1	17	-	-	-	1.86	1.25	-	1.52	1.16	-	-	1.19	-	-	2.18	1.60	1.12	1.85	1.50	1.14	-
20	1	20	-	-	-	1.26	-	-	1.02	-	-	-	1.33	1.15	1.08	1.79	1.46	1.32	1.56	1.33	1.09	-
22	1	22	1.38	1.11	-	2.96	2.24	1.46	2.44	1.88	1.29	-	1.50	1.23	-	3.06	2.35	1.57	2.54	1.99	1.41	-
23	1	23	2.12	1.50	-	4.60	3.12	1.51	3.84	3.01	2.10	1.11	2.61	2.02	1.45	4.98	3.56	2.01	4.25	3.45	2.59	1.64
24	1	24	1.62	1.17	-	3.57	2.54	1.76	2.95	2.29	1.58	-	2.50	2.13	1.78	4.32	3.38	2.60	3.75	3.14	2.50	1.81
28	1	28	1.58	1.06	-	3.55	2.14	1.29	2.93	2.28	1.57	-	2.80	2.34	2.07	4.56	3.30	2.54	4.00	3.41	2.79	2.13
30	1	30	1.27	-	-	2.80	1.86	1.12	2.30	1.77	1.22	-	1.66	1.33	1.08	3.14	2.23	1.50	2.66	2.15	1.62	1.05
39	2	8	-	-	-	1.14	-	-	-	-	-	-	-	-	-	1.19	-	-	-	-	-	-
40	2	9	-	-	-	1.52	1.01	-	1.23	-	-	-	-	-	-	1.55	1.04	-	1.27	-	-	-
41	2	10	-	-	-	1.02	-	-	-	-	-	-	-	-	-	1.16	-	-	-	-	-	-
44	2	13	1.24	-	-	2.86	1.95	1.14	2.35	1.81	1.24	-	1.46	1.13	-	3.06	2.16	1.37	2.55	2.03	1.47	-
52	2	21	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-
53	2	22	-	-	-	1.59	1.05	-	1.29	-	-	-	1.05	-	-	1.81	1.29	1.11	1.52	1.22	-	-
54	2	23	-	-	-	1.31	-	-	1.06	-	-	-	-	-	-	1.57	1.17	-	1.33	1.08	-	-
55	2	24	-	-	-	1.25	-	-	1.01	-	-	-	-	-	-	1.35	1.10	-	1.11	-	-	-
56	2	25	-	-	-	1.16	-	-	-	-	-	-	-	-	-	1.41	1.18	-	1.20	-	-	-
57	2	26	-	-	-	1.17	-	-	-	-	-	-	-	-	-	1.35	1.02	-	1.13	-	-	-
60	3	1	-	-	-	1.13	-	-	-	-	-	-	-	-	-	1.46	1.12	-	1.25	1.04	-	-
61	3	2	-	-	-	1.20	-	-	-	-	-	-	-	-	-	1.58	1.19	-	1.36	1.14	-	-
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-
63	3	4	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.24	-	-	1.05	-	-	-
67	3	8	-	-	-	-	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
75	3	16	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	-	-	-	-
76	3	17	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
77	3	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-
78	3	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
85	3	26	-	-	-	1.22	-	-	-	-	-	-	-	-	-	1.37	-	-	1.13	-	-	-
86	3	27	1.09	-	-	2.39	1.66	-	1.95	1.50	1.02	-	1.43	1.17	-	2.69	1.99	1.24	2.27	1.83	1.37	-
90	3	31	2.01	1.50	1.03	4.42	3.10	1.77	3.67	2.88	2.01	1.05	2.18	1.67	1.21	4.55	3.25	1.94	3.82	3.03	2.17	1.24
91	4	1	-	-	-	1.21	-	-	-	-	-	-	-	-	-	1.42	1.08	-	1.20	-	-	-
92	4	2	-	-	-	1.77	1.24	-	1.44	1.10	-	-	-	-	-	1.92	1.40	-	1.60	1.26	-	-
93	4	3	-	-	-	1.29	-	-	1.04	-	-	-	-	-	-	1.47	1.02	-	1.23	-	-	-
115	4	25	-	-	-	1.13	-	-	-	-	-	-	-	-	-	1.23	-	-	1.02	-	-	-
116	4	26	-	-	-	1.53	1.01	-	1.25	-	-	-	-	-	-	1.78	1.26	-	1.50	1.21	-	-
119	4	29	-	-	-	1.20	-	-	-	-	-	-	-	-	-	1.36	-	-	1.13	-	-	-
132	5	12	-	-	-	1.06	-	-	-	-	-	-	-	-	-	1.28	-	-	1.08	-	-	-
184	7	3	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
263	9	20	-	-	-	2.19	1.48	-	1.78	1.37	-	-	1.07	-	-	2.28	1.58	-	1.89	1.47	1.04	-
273	9	30	1.12	-	-	2.49	1.69	1.01	2.04	1.57	1.07	-	1.32	1.02	-	2.66	1.88	1.21	2.22	1.76	1.27	-
274	10	1	1.42	1.03	-	3.22	2.22	1.37	2.66	2.06	1.42	-	1.72	1.34	1.04	3.47	2.50	1.67	2.92	2.34	1.72	1.05
279	10	6	-	-	-	1.29	-	-	1.04	-	-	-	-	-	-	1.38	-	-	1.13	-	-	-
281	10	8	-	-	-	1.36	-	-	1.11	-	-	-	1.03	-	-	1.72	1.23	1.07	1.48	1.22	-	-
282	10	9	-	-	-	1.53	1.18	-	1.25	-	-	-	-	-	-	1.61	1.26	-	1.33	1.03	-	-
295	10	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
297	10	24	-	-	-	1.32	-	-	1.07	-	-	-	-	-	-	1.52	1.08	-	1.28	1.02	-	-
298	10	25	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05	-	-	-	-	-	-
309	11	5	-	-	-	1.95	1.52	-	1.59	1.22	-	-	1.19	1.03	-	2.24	1.82	-	1.89	1.53	1.15	-
320	11	16	1.04	-	-	2.42	1.43	-	1.98	1.52	1.04	-	1.12	-	-	2.49	1.51	-	2.05	1.60	1.12	-
322	11	18	-	-	-	1.46	-	-	1.19	-	-	-	-	-	-	1.54	1.02	-	1.27	-	-	-
325	11	21	-	-	-	1.33	-	-	1.08	-	-	-	-	-	-	1.41	1.01	-	1.15	-	-	-
326	11	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.33	1.05	-	1.15	-	-	-
338	12	4	-	-	-	1.27	-	-	1.03	-	-	-	-	-	-	1.41	1.01	-	1.17	-	-	-
341	12	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	-	-	1.04	-	-	-
349	12	15	-	-	-	-	-	-	-	-	-	-	-	-	-	1.07	-	-	-	-	-	-
350	12	16	-	-	-	1.16	-	-	-	-	-	-	-	-	-	1.25	-	-	1.03	-	-	-
352	12	18	1.06	-	-	2.45	1.65	1.16	2.00	1.54	1.05	-	1.16	-	-	2.54	1.75	1.26	2.10	1.63	1.15	-
353	12	19	-	-	-	1.58	1.07	-	1.28	-	-	-	-	-	-	1.63	1.13	-	1.34	1.03	-	-
354	12	20	1.59	1.09	-	3.72	2.46	1.09	3.08	2.39	1.66	-	1.69	1.20	-	3.80	2.55	1.19	3.17	2.49	1.76	-
355	12	21	-	-	-	2.29	1.70	1.05	1.87	1.44	-	-	1.05	-	-	2.41	1.83	1.19	2.00	1.57	1.12	-
356	12	22	2.92	2.18	1.58	5.76	4.13	2.75	4.84	3.83	2.71	1.45	3.47	2.78	2.22	6.18	4.63	3.32	5.30	4.34	3.28	2.09
357	12	23	2.09	1.55	1.16	4.46	3.15	2.09	3.71	2.90	2.03	1.07	2.50	1.98	1.62	4.78	3.51	2.51	4.06	3.28	2.44	1.51
359	12	25	1.26	1.02	-	2.59	1.96	1.05	2.12	1.63	1.12	-	1.75	1.52	1.22	3.02	2.42	1.55	2.57	2.10	1.61	1.09
360	12	26	1.38	1.10	-	3.00	2.26	1.24	2.47	1.90	1.31	-	1.58	1.30	-	3.17	2.45	1.44	2.65	2.10	1.51	-
361	12	27	-	-	-	1.35	-	-	1.09	-	-	-	1.12	-	-	1.76	1.30	1.04	1.51	1.27	1.02	-
362	12	28	-	-	-	1.79	1.28	-	1.46	1.11	-	-	1.29	1.07	-	2.09	1.60	1.24	1.77	1.44	1.09	-
363	12	29	1.77	1.31	-	3.93	2.72	1.67	3.26	2.54	1.76	-	2.35	1.91	1.56	4.40	3.25	2.26	3.76	3.08	2.34	1.55
364	12	30	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.23	-	-	1.04	-	-	-
Number of Days Δ dv >= 1.0			23	13	3	64	35	20	47	29	19	4	34	25	15	76	52	31	61	42	32	13
Maximum Δ dv			2.92	2.18	1.58	5.76	4.13	2.75	4.84	3.83	2.71	1.45	3.47	2.78	2.22	6.18	4.63	3.32	5.30	4.34	3.28	2.13

Table C.9.25 Boulder - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4	1	4	-	-	-	1.45	-	-	1.17	-	-	-	-	-	-	1.70	1.20	-	1.44	1.17	-	-
6	1	6	2.01	1.46	-	4.05	2.80	1.64	3.36	2.62	1.82	-	3.17	2.73	2.35	4.97	3.87	2.87	4.36	3.71	3.02	2.34
7	1	7	-	-	-	1.49	-	-	1.21	-	-	-	1.32	1.14	-	2.09	1.62	1.23	1.82	1.55	1.27	-
20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
21	1	21	1.62	1.18	-	3.72	2.57	1.62	3.08	2.39	1.66	-	2.30	1.90	1.59	4.24	3.15	2.29	3.63	2.99	2.32	1.61
23	1	23	-	-	-	1.59	1.04	-	1.29	-	-	-	2.35	2.18	2.04	3.08	2.61	2.23	2.82	2.56	2.29	2.03
24	1	24	-	-	-	1.01	-	-	-	-	-	-	3.00	2.88	2.78	3.34	3.06	2.84	3.19	3.03	2.88	2.72
26	1	26	-	-	-	1.56	1.23	-	1.26	-	-	-	-	-	-	1.67	1.35	-	1.39	1.09	-	-
27	1	27	-	-	-	1.11	-	-	-	-	-	-	-	-	-	1.27	1.00	-	1.06	-	-	-
29	1	29	1.00	-	-	2.37	1.71	1.16	1.94	1.49	1.02	-	1.07	-	-	2.42	1.76	1.22	2.00	1.55	1.08	-
30	1	30	1.76	1.29	-	4.06	2.84	1.75	3.37	2.63	1.83	-	1.96	1.50	1.12	4.22	3.02	1.95	3.54	2.81	2.02	1.17
40	2	9	-	-	-	1.75	1.17	-	1.42	1.09	-	-	-	-	-	1.83	1.25	-	1.51	1.17	-	-
44	2	13	1.28	-	-	2.88	1.98	1.25	2.36	1.82	1.25	-	1.52	1.19	-	3.08	2.20	1.49	2.57	2.04	1.49	-
61	3	2	-	-	-	1.91	1.33	-	1.55	1.19	-	-	1.30	1.11	-	2.36	1.80	1.23	2.02	1.67	1.31	-
62	3	3	-	-	-	1.89	1.31	-	1.54	1.18	-	-	1.06	-	-	2.11	1.54	-	1.77	1.41	1.04	-
87	3	28	-	-	-	1.02	-	-	-	-	-	-	-	-	-	1.15	-	-	-	-	-	-
109	4	19	-	-	-	1.59	1.04	-	1.29	-	-	-	-	-	-	1.62	1.07	-	1.32	1.01	-	-
110	4	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
111	4	21	-	-	-	1.10	-	-	-	-	-	-	-	-	-	1.21	-	-	1.00	-	-	-
112	4	22	-	-	-	1.21	-	-	-	-	-	-	-	-	-	1.31	-	-	1.08	-	-	-
132	5	12	-	-	-	-	-	-	-	-	-	-	1.06	1.03	1.01	1.14	1.08	1.03	1.11	1.07	1.04	-
198	7	17	-	-	-	1.16	-	-	-	-	-	-	-	-	-	1.23	-	-	1.01	-	-	-
222	8	10	-	-	-	1.62	1.17	-	1.32	1.00	-	-	-	-	-	1.72	1.28	-	1.42	1.11	-	-
262	9	19	-	-	-	1.09	-	-	-	-	-	-	-	-	-	1.25	-	-	1.05	-	-	-
263	9	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.07	-	-	-	-	-	-
265	9	22	-	-	-	1.20	-	-	-	-	-	-	-	-	-	1.43	1.04	-	1.22	-	-	-
268	9	25	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
269	9	26	-	-	-	1.73	1.17	-	1.41	1.07	-	-	-	-	-	1.83	1.27	-	1.51	1.18	-	-
322	11	18	-	-	-	2.49	1.61	-	2.04	1.57	1.07	-	1.14	-	-	2.65	1.81	1.00	2.21	1.75	1.27	-
325	11	21	-	-	-	2.04	1.32	-	1.66	1.27	-	-	1.02	-	-	2.15	1.42	-	1.78	1.39	-	-
351	12	17	-	-	-	1.26	-	-	1.02	-	-	-	-	-	-	1.33	-	-	1.09	-	-	-
352	12	18	-	-	-	1.89	1.28	-	1.54	1.18	-	-	-	-	-	1.97	1.37	-	1.63	1.26	-	-
353	12	19	1.14	-	-	2.58	1.82	1.21	2.12	1.63	1.11	-	1.21	-	-	2.64	1.88	1.27	2.18	1.69	1.18	-
354	12	20	-	-	-	2.28	1.41	-	1.87	1.43	-	-	1.10	-	-	2.40	1.53	-	1.99	1.56	1.11	-
355	12	21	1.25	-	-	3.02	2.00	1.06	2.49	1.92	1.32	-	1.39	1.02	-	3.13	2.12	1.19	2.60	2.04	1.45	-
356	12	22	-	-	-	1.63	1.09	-	1.33	1.01	-	-	2.35	2.16	2.02	3.01	2.54	2.21	2.75	2.48	2.21	1.93
358	12	24	-	-	-	1.58	1.04	-	1.28	-	-	-	1.04	-	-	1.72	1.19	-	1.43	1.13	-	-
360	12	26	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15	-	-	1.02	-	-	-
364	12	30	-	-	-	1.46	-	-	1.19	-	-	-	-	-	-	1.53	1.01	-	1.26	-	-	-
Number of Days Δ dv >= 1.0			7	3	0	33	21	7	25	17	8	0	18	11	7	39	28	14	34	25	16	6
Maximum Δ dv			2.01	1.46	0.00	4.06	2.84	1.75	3.37	2.63	1.83	0.00	3.17	2.88	2.78	4.97	3.87	2.87	4.36	3.71	3.02	2.72

Table C.9.26 Boulder - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4	1	4	-	-	-	1.66	1.05	-	1.35	1.03	-	-	1.06	-	-	1.94	1.38	-	1.65	1.35	1.04	-
6	1	6	2.30	1.67	1.12	4.57	3.19	1.88	3.81	2.99	2.09	1.10	3.60	3.10	2.68	5.58	4.38	3.27	4.91	4.20	3.43	2.67
7	1	7	-	-	-	1.71	1.15	-	1.39	1.06	-	-	1.51	1.31	1.14	2.39	1.86	1.41	2.09	1.78	1.47	1.14
20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16	-	-	1.02	-	-	-
21	1	21	1.86	1.36	-	4.21	2.93	1.86	3.50	2.73	1.90	-	2.62	2.17	1.82	4.78	3.58	2.62	4.11	3.40	2.65	1.84
22	1	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-
23	1	23	-	-	-	1.83	1.20	-	1.49	1.13	-	-	2.68	2.49	2.34	3.50	2.97	2.54	3.21	2.92	2.61	2.32
24	1	24	-	-	-	1.17	-	-	-	-	-	-	3.41	3.27	3.16	3.78	3.47	3.23	3.62	3.44	3.27	3.09
26	1	26	-	-	-	1.78	1.41	-	1.45	1.11	-	-	1.08	-	-	1.92	1.55	1.02	1.59	1.25	-	-
27	1	27	-	-	-	1.27	-	-	1.03	-	-	-	-	-	-	1.46	1.15	-	1.22	-	-	-
29	1	29	1.16	-	-	2.70	1.95	1.34	2.22	1.71	1.17	-	1.23	-	-	2.77	2.02	1.41	2.28	1.78	1.24	-
30	1	30	2.02	1.49	1.04	4.58	3.23	2.01	3.82	2.99	2.09	1.10	2.24	1.72	1.28	4.76	3.43	2.23	4.01	3.19	2.31	1.34
40	2	9	-	-	-	2.01	1.35	-	1.64	1.26	-	-	-	-	-	2.11	1.45	-	1.74	1.36	-	-
44	2	13	1.48	1.09	-	3.28	2.28	1.45	2.71	2.10	1.45	-	1.75	1.37	1.09	3.51	2.52	1.72	2.94	2.35	1.71	1.04
61	3	2	-	-	-	2.19	1.53	-	1.79	1.37	-	-	1.50	1.28	1.06	2.70	2.07	1.41	2.32	1.92	1.51	1.09
62	3	3	-	-	-	2.17	1.51	-	1.77	1.36	-	-	1.22	-	-	2.42	1.78	1.13	2.03	1.63	1.21	-
77	3	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15	-	-	-	-	-	-
87	3	28	-	-	-	1.18	-	-	-	-	-	-	-	-	-	1.34	-	-	1.11	-	-	-
109	4	19	-	-	-	1.45	-	-	1.18	-	-	-	-	-	-	1.48	-	-	1.20	-	-	-
111	4	21	-	-	-	1.00	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
112	4	22	-	-	-	1.10	-	-	-	-	-	-	-	-	-	1.19	-	-	-	-	-	-
132	5	12	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	1.01	-	-	-
198	7	17	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	-	-	-	-
222	8	10	-	-	-	1.37	-	-	1.11	-	-	-	-	-	-	1.45	1.08	-	1.20	-	-	-
262	9	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	-	-	-	-
265	9	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.18	-	-	1.00	-	-	-
269	9	26	-	-	-	1.43	-	-	1.16	-	-	-	-	-	-	1.52	1.05	-	1.25	-	-	-
320	11	16	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06	-	-	-	-	-	-
322	11	18	1.04	-	-	2.75	1.79	-	2.26	1.74	1.19	-	1.26	-	-	2.92	2.00	1.12	2.44	1.94	1.41	-
325	11	21	1.01	-	-	2.25	1.46	-	1.84	1.41	-	-	1.13	-	-	2.37	1.57	-	1.97	1.54	1.11	-
351	12	17	-	-	-	1.40	-	-	1.13	-	-	-	-	-	-	1.48	1.01	-	1.22	-	-	-
352	12	18	-	-	-	2.10	1.43	-	1.71	1.31	-	-	1.06	-	-	2.19	1.52	-	1.80	1.41	-	-
353	12	19	1.27	-	-	2.85	2.02	1.34	2.34	1.81	1.24	-	1.34	1.03	-	2.91	2.08	1.42	2.41	1.88	1.31	-
354	12	20	1.08	-	-	2.52	1.56	-	2.07	1.59	1.09	-	1.23	-	-	2.65	1.70	-	2.20	1.73	1.23	-
355	12	21	1.39	-	-	3.33	2.22	1.18	2.75	2.13	1.47	-	1.54	1.13	-	3.45	2.35	1.33	2.88	2.26	1.61	-
356	12	22	-	-	-	1.81	1.21	-	1.48	1.13	-	-	2.59	2.39	2.23	3.31	2.81	2.44	3.03	2.74	2.44	2.14
357	12	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
358	12	24	-	-	-	1.75	1.15	-	1.42	1.09	-	-	1.16	-	-	1.91	1.32	-	1.59	1.26	-	-
360	12	26	-	-	-	-	-	-	-	-	-	-	-	-	-	1.28	-	-	1.14	-	-	-
364	12	30	-	-	-	1.63	1.05	-	1.32	1.01	-	-	-	-	-	1.70	1.13	-	1.40	1.09	-	-
Number of Days Δ dv >= 1.0			10	4	2	30	21	7	26	21	9	2	20	11	9	40	26	15	32	22	17	9
Maximum Δ dv			2.30	1.67	1.12	4.58	3.23	2.01	3.82	2.99	2.09	1.10	3.60	3.27	3.16	5.58	4.38	3.27	4.91	4.20	3.43	3.09

Table C.9.27 Bronx - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.23	-	-	1.08	-	-	-
21	1	21	-	-	-	1.17	-	-	-	-	-	-	-	-	-	1.36	-	-	1.14	-	-	-
23	1	23	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
30	1	30	1.40	1.01	-	3.37	2.34	1.35	2.78	2.15	1.48	-	1.46	1.08	-	3.42	2.40	1.42	2.83	2.21	1.55	-
40	2	9	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.36	1.03	-	1.17	-	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04	-	-	-	-	-	-
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
87	3	28	-	-	-	1.07	-	-	-	-	-	-	-	-	-	1.31	-	-	1.11	-	-	-
325	11	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.18	-	-	1.01	-	-	-
353	12	19	-	-	-	1.05	-	-	-	-	-	-	-	-	-	1.19	-	-	-	-	-	-
355	12	21	-	-	-	1.01	-	-	-	-	-	-	-	-	-	1.14	-	-	-	-	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.09	-	-	-	-	-	-
Number of Days Δ dv >= 1.0			1	1	0	7	1	1	1	1	1	0	1	1	0	12	2	1	6	1	1	0
Maximum Δ dv			1.40	1.01	0.00	3.37	2.34	1.35	2.78	2.15	1.48	0.00	1.46	1.08	0.00	3.42	2.40	1.42	2.83	2.21	1.55	0.00

Table C.9.28 Bronx - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	1.07	-	-	-	-	-	-
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.41	1.12	-	1.24	1.07	-	-
21	1	21	-	-	-	1.34	-	-	1.09	-	-	-	-	-	-	1.56	1.09	-	1.31	1.05	-	-
23	1	23	-	-	-	1.19	-	-	-	-	-	-	-	-	-	1.29	-	-	1.07	-	-	-
27	1	27	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
30	1	30	1.60	1.16	-	3.82	2.67	1.56	3.16	2.46	1.70	-	1.68	1.24	-	3.88	2.73	1.63	3.22	2.53	1.78	-
40	2	9	-	-	-	1.20	-	-	-	-	-	-	-	-	-	1.57	1.20	-	1.35	1.13	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.20	-	-	1.04	-	-	-
62	3	3	-	-	-	1.05	-	-	-	-	-	-	-	-	-	1.29	-	-	1.09	-	-	-
87	3	28	-	-	-	1.23	-	-	-	-	-	-	-	-	-	1.51	1.14	-	1.28	1.05	-	-
325	11	21	-	-	-	1.02	-	-	-	-	-	-	-	-	-	1.31	-	-	1.12	-	-	-
352	12	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-
353	12	19	-	-	-	1.17	-	-	-	-	-	-	-	-	-	1.32	-	-	1.10	-	-	-
355	12	21	-	-	-	1.12	-	-	-	-	-	-	-	-	-	1.27	-	-	1.05	-	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	-	-	1.06	-	-	-
Number of Days Δ dv >= 1.0			1	1	0	9	1	1	2	1	1	0	1	1	0	15	5	1	12	5	1	0
Maximum Δ dv			1.60	1.16	0.00	3.82	2.67	1.56	3.16	2.46	1.70	0.00	1.68	1.24	0.00	3.88	2.73	1.63	3.22	2.53	1.78	0.00

Table C.9.29 Cora - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	-	-	-	-	-	-	-	1.04	-	-	1.41	1.17	-	1.28	1.14	1.01	-
7	1	7	-	-	-	1.09	-	-	-	-	-	-	1.08	-	-	1.63	1.29	-	1.44	1.24	1.03	-
21	1	21	-	-	-	1.61	1.05	-	1.31	-	-	-	-	-	-	1.85	1.31	-	1.56	1.26	-	-
23	1	23	-	-	-	1.40	-	-	1.13	-	-	-	-	-	-	1.51	1.03	-	1.25	-	-	-
26	1	26	-	-	-	1.61	1.03	-	1.31	-	-	-	1.20	-	-	1.96	1.41	-	1.67	1.37	1.06	-
27	1	27	-	-	-	1.33	-	-	1.08	-	-	-	1.20	1.03	-	1.84	1.42	1.07	1.60	1.35	1.10	-
30	1	30	2.66	1.95	1.27	6.00	4.32	2.58	5.06	4.01	2.85	1.52	2.75	2.04	1.38	6.07	4.40	2.67	5.13	4.09	2.93	1.62
40	2	9	-	-	-	1.18	-	-	-	-	-	-	-	-	-	1.43	1.07	-	1.22	-	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.34	1.02	-	1.15	-	-	-
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.03	-	-	-	-	-	-
87	3	28	-	-	-	1.08	-	-	-	-	-	-	-	-	-	1.35	1.04	-	1.15	-	-	-
325	11	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15	-	-	-	-	-	-
352	12	18	-	-	-	1.09	-	-	-	-	-	-	-	-	-	1.30	-	-	1.09	-	-	-
353	12	19	-	-	-	1.33	-	-	1.08	-	-	-	-	-	-	1.48	1.05	-	1.23	-	-	-
355	12	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
356	12	22	-	-	-	1.05	-	-	-	-	-	-	1.01	-	-	1.58	1.21	-	1.39	1.20	1.00	-
Number of Days Δ dv >= 1.0			1	1	1	11	3	1	6	1	1	1	6	2	1	16	12	2	13	7	6	1
Maximum Δ dv			2.66	1.95	1.27	6.00	4.32	2.58	5.06	4.01	2.85	1.52	2.75	2.04	1.38	6.07	4.40	2.67	5.13	4.09	2.93	1.62

Table C.9.30 Cora - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	-	-	-	-	-	-	-	-	-	-	1.20	1.10	1.01	1.62	1.35	1.13	1.47	1.32	1.16	1.01
7	1	7	-	-	-	1.25	-	-	1.02	-	-	-	1.24	1.09	-	1.87	1.48	1.14	1.65	1.42	1.18	-
21	1	21	-	-	-	1.85	1.22	-	1.51	1.15	-	-	1.05	-	-	2.12	1.51	1.01	1.79	1.44	1.09	-
23	1	23	-	-	-	1.61	1.06	-	1.30	-	-	-	-	-	-	1.73	1.19	-	1.43	1.13	-	-
26	1	26	-	-	-	1.85	1.19	-	1.50	1.15	-	-	1.38	1.12	-	2.24	1.62	1.14	1.91	1.57	1.22	-
27	1	27	-	-	-	1.53	1.02	-	1.24	-	-	-	1.38	1.19	1.03	2.10	1.63	1.23	1.83	1.55	1.27	-
30	1	30	3.03	2.23	1.47	6.70	4.87	2.94	5.68	4.53	3.23	1.75	3.13	2.34	1.58	6.77	4.96	3.04	5.75	4.62	3.33	1.86
40	2	9	-	-	-	1.36	-	-	1.10	-	-	-	-	-	-	1.65	1.23	-	1.40	1.15	-	-
44	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06	-	-	-	-	-	-
45	2	14	-	-	-	1.15	-	-	-	-	-	-	-	-	-	1.54	1.18	-	1.33	1.12	-	-
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.20	-	-	1.03	-	-	-
87	3	28	-	-	-	1.25	-	-	1.01	-	-	-	-	-	-	1.56	1.21	-	1.33	1.10	-	-
325	11	21	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.28	-	-	1.09	-	-	-
352	12	18	-	-	-	1.21	-	-	-	-	-	-	-	-	-	1.44	1.07	-	1.22	-	-	-
353	12	19	-	-	-	1.48	-	-	1.20	-	-	-	-	-	-	1.64	1.17	-	1.37	1.08	-	-
355	12	21	-	-	-	1.10	-	-	-	-	-	-	-	-	-	1.22	-	-	1.02	-	-	-
356	12	22	-	-	-	1.17	-	-	-	-	-	-	1.13	-	-	1.76	1.34	1.04	1.55	1.33	1.11	-
Number of Days Δ dv >= 1.0			1	1	1	14	5	1	9	3	1	1	7	5	3	17	13	7	16	12	7	2
Maximum Δ dv			3.03	2.23	1.47	6.70	4.87	2.94	5.68	4.53	3.23	1.75	3.13	2.34	1.58	6.77	4.96	3.04	5.75	4.62	3.33	1.86

Table C.9.31 Daniel - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06	-	-	-	-	-	-
6	1	6	-	-	-	1.09	-	-	-	-	-	-	1.01	-	-	1.58	1.23	-	1.38	1.18	-	-
7	1	7	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.46	1.13	-	1.27	1.07	-	-
21	1	21	-	-	-	1.87	1.21	-	1.52	1.16	-	-	1.17	-	-	2.25	1.62	1.10	1.91	1.57	1.21	-
22	1	22	-	-	-	1.07	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
23	1	23	-	-	-	1.28	-	-	1.04	-	-	-	-	-	-	1.40	-	-	1.16	-	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	1.01	-	-	1.26	1.04	-	1.14	1.02	-	-
27	1	27	-	-	-	-	-	-	-	-	-	-	-	-	-	1.07	-	-	-	-	-	-
30	1	30	2.12	1.54	1.01	4.89	3.46	2.04	4.09	3.21	2.25	1.19	2.20	1.63	1.11	4.95	3.54	2.12	4.15	3.29	2.33	1.28
40	2	9	-	-	-	1.54	1.04	-	1.25	-	-	-	1.06	-	-	1.85	1.36	-	1.57	1.28	-	-
44	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	1.15	-	-	1.02	-	-	-
45	2	14	-	-	-	1.12	-	-	-	-	-	-	-	-	-	1.46	1.09	-	1.25	1.04	-	-
62	3	3	-	-	-	1.27	-	-	1.03	-	-	-	-	-	-	1.61	1.22	-	1.38	1.14	-	-
87	3	28	-	-	-	1.31	-	-	1.06	-	-	-	-	-	-	1.59	1.17	-	1.34	1.10	-	-
109	4	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-
253	9	10	-	-	-	1.00	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
325	11	21	-	-	-	1.26	-	-	1.02	-	-	-	-	-	-	1.55	1.13	-	1.32	1.08	-	-
352	12	18	-	-	-	1.21	-	-	-	-	-	-	-	-	-	1.49	1.12	-	1.27	1.04	-	-
353	12	19	-	-	-	1.35	-	-	1.09	-	-	-	-	-	-	1.56	1.07	-	1.31	1.06	-	-
355	12	21	-	-	-	1.46	-	-	1.18	-	-	-	-	-	-	1.75	1.26	-	1.48	1.21	-	-
356	12	22	-	-	-	1.16	-	-	-	-	-	-	1.14	-	-	1.76	1.35	1.05	1.55	1.34	1.12	-
Number of Days Δ dv >= 1.0			1	1	1	16	3	1	9	2	1	1	6	1	1	21	14	3	16	14	3	1
Maximum Δ dv			2.12	1.54	1.01	4.89	3.46	2.04	4.09	3.21	2.25	1.19	2.20	1.63	1.11	4.95	3.54	2.12	4.15	3.29	2.33	1.28

Table C.9.32 Daniel - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	-	-	1.05	-	-	-
6	1	6	-	-	-	1.26	-	-	1.02	-	-	-	1.16	1.01	-	1.82	1.41	1.07	1.59	1.36	1.12	-
7	1	7	-	-	-	1.19	-	-	-	-	-	-	1.07	-	-	1.67	1.30	-	1.46	1.24	1.01	-
21	1	21	-	-	-	2.14	1.40	-	1.75	1.34	-	-	1.34	1.09	-	2.57	1.86	1.26	2.19	1.80	1.39	-
22	1	22	-	-	-	1.23	-	-	-	-	-	-	-	-	-	1.30	-	-	1.07	-	-	-
23	1	23	-	-	-	1.48	-	-	1.20	-	-	-	-	-	-	1.61	1.12	-	1.34	1.06	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	1.16	1.06	-	1.45	1.20	1.02	1.32	1.18	1.04	-
25	1	25	-	-	-	-	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
27	1	27	-	-	-	-	-	-	-	-	-	-	-	-	-	1.24	-	-	1.08	-	-	-
30	1	30	2.42	1.77	1.17	5.49	3.92	2.33	4.61	3.64	2.57	1.37	2.52	1.87	1.27	5.56	4.00	2.43	4.69	3.72	2.66	1.47
39	2	8	-	-	-	-	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
40	2	9	-	-	-	1.78	1.21	-	1.45	1.11	-	-	1.22	1.00	-	2.13	1.57	1.09	1.81	1.48	1.14	-
44	2	13	-	-	-	-	-	-	-	-	-	-	-	-	-	1.33	1.07	-	1.18	1.03	-	-
45	2	14	-	-	-	1.30	-	-	1.05	-	-	-	1.03	-	-	1.68	1.26	-	1.45	1.20	-	-
62	3	3	-	-	-	1.46	-	-	1.19	-	-	-	1.08	-	-	1.86	1.41	1.02	1.59	1.32	1.04	-
87	3	28	-	-	-	1.52	1.03	-	1.23	-	-	-	1.11	-	-	1.83	1.36	-	1.55	1.27	-	-
109	4	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
325	11	21	-	-	-	1.39	-	-	1.13	-	-	-	-	-	-	1.71	1.25	-	1.46	1.20	-	-
352	12	18	-	-	-	1.34	-	-	1.09	-	-	-	-	-	-	1.66	1.25	-	1.41	1.16	-	-
353	12	19	-	-	-	1.50	-	-	1.22	-	-	-	-	-	-	1.74	1.19	-	1.46	1.18	-	-
355	12	21	-	-	-	1.62	1.06	-	1.31	1.00	-	-	1.02	-	-	1.94	1.40	-	1.64	1.34	1.03	-
356	12	22	-	-	-	1.29	-	-	1.05	-	-	-	1.27	1.11	-	1.96	1.50	1.17	1.73	1.49	1.25	1.00
357	12	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.06	-	-	-	-	-	-
Number of Days Δ dv >= 1.0			1	1	1	15	5	1	13	4	1	1	11	6	1	23	16	7	19	16	9	2
Maximum Δ dv			2.42	1.77	1.17	5.49	3.92	2.33	4.61	3.64	2.57	1.37	2.52	1.87	1.27	5.56	4.00	2.43	4.69	3.72	2.66	1.47

Table C.9.33 Farson - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	1	3	-	-	-	-	-	-	-	-	-	-	1.29	1.24	1.20	1.46	1.35	1.27	1.38	1.30	1.22	1.13
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.02	-	-	-	-	-	-
22	1	22	1.93	1.36	-	4.33	2.96	1.87	3.60	2.82	1.96	1.03	2.13	1.57	1.14	4.49	3.14	2.06	3.77	2.99	2.16	1.24
23	1	23	1.24	-	-	2.41	1.62	-	1.97	1.51	1.03	-	1.84	1.51	1.21	2.94	2.20	1.57	2.53	2.10	1.65	1.19
28	1	28	1.17	-	-	2.40	1.66	1.04	1.97	1.51	1.03	-	2.21	1.94	1.71	3.33	2.65	2.09	2.93	2.51	2.08	1.63
29	1	29	1.62	1.20	-	3.21	2.25	1.42	2.65	2.05	1.41	-	2.17	1.78	1.44	3.68	2.77	1.98	3.14	2.58	1.97	1.33
41	2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	-	-	-	-	-	-
43	2	12	-	-	-	-	-	-	-	-	-	-	-	-	-	1.27	-	-	1.10	-	-	-
86	3	27	-	-	-	-	-	-	-	-	-	-	-	-	-	1.03	-	-	-	-	-	-
90	3	31	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
306	11	2	-	-	-	1.17	-	-	-	-	-	-	-	-	-	1.36	-	-	1.14	-	-	-
332	11	28	-	-	-	1.52	1.06	-	1.24	-	-	-	-	-	-	1.74	1.28	-	1.46	1.17	-	-
354	12	20	-	-	-	1.75	1.12	-	1.43	1.09	-	-	1.00	-	-	1.95	1.33	-	1.63	1.30	-	-
355	12	21	1.85	1.35	-	3.45	2.34	1.43	2.85	2.21	1.52	-	2.42	1.94	1.53	3.93	2.88	2.02	3.36	2.76	2.11	1.42
356	12	22	-	-	-	1.11	-	-	-	-	-	-	-	-	-	1.30	-	-	1.10	-	-	-
357	12	23	-	-	-	1.65	1.12	-	1.34	1.02	-	-	1.42	1.19	1.00	2.15	1.65	1.24	1.86	1.56	1.25	-
359	12	25	-	-	-	-	-	-	-	-	-	-	1.34	1.22	1.13	1.67	1.42	1.23	1.52	1.37	1.21	1.05
360	12	26	-	-	-	-	-	-	-	-	-	-	1.31	1.18	1.07	1.58	1.35	1.15	1.42	1.26	1.11	-
363	12	29	-	-	-	-	-	-	-	-	-	-	1.54	1.49	1.47	1.63	1.54	1.49	1.57	1.51	1.45	1.39
Number of Days Δ dv >= 1.0			5	3	0	10	8	4	8	7	5	1	11	10	10	19	12	10	15	12	10	8
Maximum Δ dv			1.93	1.36	0.00	4.33	2.96	1.87	3.60	2.82	1.96	1.03	2.42	1.94	1.71	4.49	3.14	2.09	3.77	2.99	2.16	1.63

Table C.9.34 Farson - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	1	3	-	-	-	-	-	-	-	-	-	-	1.48	1.43	1.38	1.68	1.55	1.46	1.59	1.49	1.40	1.30
7	1	7	-	-	-	-	-	-	-	-	-	-	-	-	-	1.17	-	-	1.07	-	-	-
22	1	22	2.21	1.57	1.06	4.88	3.37	2.14	4.08	3.20	2.24	1.19	2.43	1.80	1.31	5.05	3.56	2.36	4.26	3.40	2.46	1.43
23	1	23	1.43	1.02	-	2.75	1.86	1.09	2.26	1.74	1.19	-	2.11	1.73	1.40	3.34	2.51	1.80	2.88	2.40	1.90	1.37
28	1	28	1.35	1.00	-	2.74	1.90	1.20	2.25	1.73	1.19	-	2.52	2.21	1.96	3.77	3.02	2.39	3.33	2.87	2.38	1.87
29	1	29	1.85	1.38	-	3.64	2.57	1.63	3.01	2.34	1.62	-	2.47	2.04	1.65	4.17	3.15	2.26	3.57	2.93	2.26	1.53
41	2	10	-	-	-	1.10	-	-	-	-	-	-	-	-	-	1.28	-	-	1.08	-	-	-
43	2	12	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.47	1.14	-	1.28	1.08	-	-
86	3	27	-	-	-	-	-	-	-	-	-	-	-	-	-	1.19	-	-	1.02	-	-	-
90	3	31	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.28	-	-	1.08	-	-	-
306	11	2	-	-	-	1.30	-	-	1.05	-	-	-	-	-	-	1.51	1.08	-	1.27	1.02	-	-
322	11	18	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
332	11	28	-	-	-	1.69	1.18	-	1.37	1.05	-	-	-	-	-	1.92	1.42	1.02	1.61	1.29	-	-
354	12	20	-	-	-	1.95	1.25	-	1.59	1.21	-	-	1.12	-	-	2.16	1.48	-	1.81	1.44	1.06	-
355	12	21	2.06	1.50	1.01	3.79	2.59	1.59	3.14	2.44	1.69	-	2.68	2.15	1.70	4.32	3.18	2.24	3.70	3.04	2.34	1.58
356	12	22	-	-	-	1.24	-	-	1.00	-	-	-	-	-	-	1.45	1.03	-	1.22	-	-	-
357	12	23	-	-	-	1.83	1.25	-	1.49	1.14	-	-	1.58	1.33	1.12	2.38	1.84	1.38	2.06	1.73	1.39	1.03
358	12	24	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
359	12	25	-	-	-	-	-	-	-	-	-	-	1.49	1.36	1.25	1.86	1.58	1.36	1.69	1.52	1.35	1.17
360	12	26	-	-	-	-	-	-	-	-	-	-	1.45	1.32	1.19	1.75	1.50	1.28	1.58	1.41	1.23	1.05
363	12	29	-	-	-	-	-	-	-	-	-	-	1.71	1.65	1.63	1.81	1.72	1.66	1.74	1.67	1.61	1.54
Number of Days Δ dv >= 1.0			5	5	2	13	8	5	10	8	5	1	11	10	10	21	15	11	19	14	11	10
Maximum Δ dv			2.21	1.57	1.06	4.88	3.37	2.14	4.08	3.20	2.24	1.19	2.68	2.21	1.96	5.05	3.56	2.39	4.26	3.40	2.46	1.87

Table C.9.35 La Barge - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	1.08	-	-	2.06	1.36	-	1.68	1.28	-	-	1.21	-	-	2.17	1.48	-	1.79	1.40	-	-
21	1	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.09	-	-	-	-	-	-
22	1	22	-	-	-	-	-	-	-	-	-	-	1.43	1.36	1.31	1.71	1.52	1.37	1.61	1.52	1.42	1.32
23	1	23	1.10	-	-	2.27	1.52	-	1.85	1.42	-	-	2.50	2.24	2.02	3.51	2.86	2.33	3.14	2.77	2.40	2.02
43	2	12	-	-	-	1.49	-	-	1.21	-	-	-	1.00	-	-	1.88	1.29	-	1.61	1.33	1.04	-
61	3	2	-	-	-	1.33	-	-	1.08	-	-	-	-	-	-	1.55	1.12	-	1.31	1.06	-	-
162	6	11	-	-	-	1.30	-	-	1.06	-	-	-	-	-	-	1.59	1.13	-	1.35	1.10	-	-
264	9	21	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.25	-	-	1.06	-	-	-
354	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.19	-	-	1.09	-	-	-
355	12	21	-	-	-	-	-	-	-	-	-	-	1.84	1.75	1.69	2.14	1.92	1.76	2.02	1.90	1.78	1.65
356	12	22	-	-	-	-	-	-	-	-	-	-	1.04	-	-	1.39	1.14	-	1.24	1.08	-	-
358	12	24	-	-	-	-	-	-	-	-	-	-	-	-	-	1.19	-	-	1.03	-	-	-
359	12	25	-	-	-	-	-	-	-	-	-	-	1.09	1.08	1.06	1.16	1.11	1.08	1.14	1.11	1.08	1.06
360	12	26	-	-	-	-	-	-	-	-	-	-	1.34	1.31	1.29	1.46	1.38	1.32	1.42	1.37	1.33	1.28
363	12	29	-	-	-	-	-	-	-	-	-	-	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.57
Number of Days Δ dv >= 1.0			2	0	0	6	2	0	5	2	0	0	9	6	6	15	11	6	14	11	7	6
Maximum Δ dv			1.10	0.00	0.00	2.27	1.52	0.00	1.85	1.42	0.00	0.00	2.50	2.24	2.02	3.51	2.86	2.33	3.14	2.77	2.40	2.02

Table C.9.36 La Barge - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6	1	6	1.25	-	-	2.35	1.56	-	1.92	1.48	1.01	-	1.39	1.03	-	2.48	1.69	1.12	2.05	1.61	1.15	-
21	1	21	-	-	-	-	-	-	-	-	-	-	1.02	-	-	1.26	1.07	-	1.12	-	-	-
22	1	22	-	-	-	-	-	-	-	-	-	-	1.64	1.57	1.50	1.96	1.75	1.58	1.85	1.74	1.63	1.51
23	1	23	1.27	-	-	2.59	1.74	1.02	2.12	1.63	1.12	-	2.85	2.56	2.31	3.97	3.25	2.66	3.57	3.15	2.74	2.30
43	2	12	-	-	-	1.72	1.02	-	1.39	1.06	-	-	1.16	-	-	2.16	1.50	1.07	1.85	1.53	1.21	-
61	3	2	-	-	-	1.53	1.02	-	1.24	-	-	-	-	-	-	1.79	1.30	-	1.51	1.22	-	-
162	6	11	-	-	-	1.21	-	-	-	-	-	-	-	-	-	1.47	1.05	-	1.25	1.02	-	-
264	9	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.03	-	-	-	-	-	-
354	12	20	-	-	-	-	-	-	-	-	-	-	1.09	1.00	-	1.32	1.10	-	1.22	1.11	-	-
355	12	21	-	-	-	-	-	-	-	-	-	-	2.04	1.95	1.88	2.37	2.12	1.96	2.24	2.11	1.97	1.83
356	12	22	-	-	-	-	-	-	-	-	-	-	1.16	1.04	-	1.54	1.27	1.06	1.37	1.20	1.02	-
357	12	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.09	-	-	-	-	-	-
358	12	24	-	-	-	-	-	-	-	-	-	-	-	-	-	1.32	1.00	-	1.14	-	-	-
359	12	25	-	-	-	-	-	-	-	-	-	-	1.22	1.20	1.18	1.29	1.24	1.20	1.26	1.24	1.21	1.18
360	12	26	-	-	-	-	-	-	-	-	-	-	1.49	1.45	1.43	1.62	1.53	1.47	1.57	1.52	1.48	1.43
363	12	29	-	-	-	-	-	-	-	-	-	-	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Number of Days Δ dv >= 1.0			2	0	0	5	4	1	4	3	2	0	11	9	6	16	14	9	14	12	9	6
Maximum Δ dv			1.27	0.00	0.00	2.59	1.74	1.02	2.12	1.63	1.12	0.00	2.85	2.56	2.31	3.97	3.25	2.66	3.57	3.15	2.74	2.30

Table C.9.37 Mema - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	1	5	-	-	-	1.09	-	-	-	-	-	-	-	-	-	1.34	1.01	-	1.13	-	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	-	-	-	1.24	-	-	1.09	-	-	-
25	1	25	-	-	-	1.43	-	-	1.16	-	-	-	-	-	-	1.61	1.16	-	1.34	1.07	-	-
40	2	9	-	-	-	1.00	-	-	-	-	-	-	-	-	-	1.41	1.08	-	1.22	1.03	-	-
62	3	3	-	-	-	1.38	-	-	1.12	-	-	-	-	-	-	1.68	1.26	-	1.42	1.16	-	-
353	12	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
355	12	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.17	-	-	-	-	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.02	-	-	-	-	-	-
357	12	23	-	-	-	-	-	-	-	-	-	-	-	-	-	1.11	1.03	-	1.06	1.01	-	-
Number of Days Δ dv >= 1.0			0	0	0	4	0	0	2	0	0	0	0	0	0	9	5	0	6	4	0	0
Maximum Δ dv			0.00	0.00	0.00	1.43	0.00	0.00	1.16	0.00	0.00	0.00	0.00	0.00	0.00	1.68	1.26	0.00	1.42	1.16	0.00	0.00

Table C.9.38 Merna - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	1	5	-	-	-	1.25	-	-	1.01	-	-	-	-	-	-	1.54	1.16	-	1.31	1.07	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	1.04	-	-	1.43	1.11	-	1.25	1.07	-	-
25	1	25	-	-	-	1.64	1.13	-	1.34	1.02	-	-	-	-	-	1.84	1.34	-	1.54	1.23	-	-
40	2	9	-	-	-	1.16	-	-	-	-	-	-	1.07	-	-	1.62	1.25	-	1.41	1.20	-	-
62	3	3	-	-	-	1.60	1.10	-	1.30	-	-	-	1.09	-	-	1.93	1.45	-	1.64	1.35	1.04	-
353	12	19	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22	-	-	1.05	-	-	-
354	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.05	-	-	-	-	-	-
355	12	21	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.30	-	-	1.11	-	-	-
356	12	22	-	-	-	-	-	-	-	-	-	-	-	-	-	1.14	-	-	1.00	-	-	-
357	12	23	-	-	-	-	-	-	-	-	-	-	1.11	1.07	1.04	1.23	1.14	1.08	1.18	1.13	1.08	1.03
Number of Days Δ dv >= 1.0			0	0	0	5	2	0	3	1	0	0	4	1	1	10	6	1	9	6	2	1
Maximum Δ dv			0.00	0.00	0.00	1.64	1.13	0.00	1.34	1.02	0.00	0.00	1.11	1.07	1.04	1.93	1.45	1.08	1.64	1.35	1.08	1.03

Table C.9.39 Pinedale - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4	1	4	-	-	-	1.09	-	-	-	-	-	-	-	-	-	1.13	-	-	-	-	-	-
6	1	6	-	-	-	1.53	1.02	-	1.25	-	-	-	2.16	1.98	1.83	2.88	2.43	2.04	2.62	2.37	2.10	1.83
7	1	7	-	-	-	1.28	-	-	1.04	-	-	-	1.31	1.15	1.01	1.95	1.56	1.21	1.72	1.49	1.25	1.01
21	1	21	-	-	-	2.17	1.44	-	1.77	1.36	-	-	1.32	1.07	-	2.55	1.85	1.28	2.17	1.77	1.35	-
22	1	22	-	-	-	1.22	-	-	-	-	-	-	-	-	-	1.30	-	-	1.07	-	-	-
23	1	23	-	-	-	1.32	-	-	1.07	-	-	-	-	-	-	1.49	1.04	-	1.24	-	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	1.25	1.20	1.15	1.38	1.26	1.18	1.31	1.25	1.18	1.12
26	1	26	1.25	-	-	2.36	1.59	-	1.93	1.48	1.01	-	1.40	1.08	-	2.48	1.72	1.07	2.06	1.62	1.18	-
27	1	27	-	-	-	1.55	1.06	-	1.26	-	-	-	1.20	1.01	-	1.89	1.43	1.05	1.62	1.36	1.09	-
30	1	30	3.60	2.69	1.83	7.66	5.67	3.52	6.53	5.25	3.79	2.07	3.70	2.80	1.94	7.72	5.75	3.62	6.60	5.34	3.88	2.19
40	2	9	-	-	-	1.25	-	-	1.01	-	-	-	-	-	-	1.49	1.10	-	1.26	1.02	-	-
44	2	13	-	-	-	1.24	-	-	1.00	-	-	-	-	-	-	1.50	1.09	-	1.28	1.04	-	-
45	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	1.18	-	-	1.01	-	-	-
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
87	3	28	-	-	-	1.06	-	-	-	-	-	-	-	-	-	1.34	1.05	-	1.14	-	-	-
109	4	19	-	-	-	1.67	1.08	-	1.36	1.03	-	-	-	-	-	1.70	1.11	-	1.38	1.06	-	-
112	4	22	-	-	-	1.22	-	-	-	-	-	-	-	-	-	1.42	-	-	1.19	-	-	-
351	12	17	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	-	-	-	-	-	-
352	12	18	-	-	-	1.38	-	-	1.12	-	-	-	-	-	-	1.55	1.13	-	1.30	1.04	-	-
353	12	19	-	-	-	1.83	1.23	-	1.49	1.13	-	-	-	-	-	1.94	1.35	-	1.60	1.26	-	-
354	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
355	12	21	-	-	-	1.25	-	-	1.01	-	-	-	-	-	-	1.49	1.03	-	1.26	1.02	-	-
356	12	22	-	-	-	1.45	-	-	1.18	-	-	-	1.46	1.27	1.14	2.20	1.71	1.36	1.94	1.68	1.41	1.14
Number of Days Δ dv >= 1.0			2	1	1	18	7	1	14	5	2	1	8	8	5	23	16	8	19	14	8	5
Maximum Δ dv			3.60	2.69	1.83	7.66	5.67	3.52	6.53	5.25	3.79	2.07	3.70	2.80	1.94	7.72	5.75	3.62	6.60	5.34	3.88	2.19

Table C.9.40 Pinedale - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Each Preferred Alternative Modeling Scenario (1-20)

Julian Day	Month	Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4	1	4	-	-	-	1.26	-	-	1.02	-	-	-	-	-	-	1.30	-	-	1.06	-	-	-
6	1	6	-	-	-	1.76	1.18	-	1.43	1.09	-	-	2.46	2.27	2.10	3.27	2.77	2.33	2.99	2.70	2.40	2.09
7	1	7	-	-	-	1.48	-	-	1.20	-	-	-	1.51	1.33	1.17	2.23	1.79	1.39	1.98	1.71	1.44	1.16
20	1	20	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	-	-	-	-
21	1	21	1.03	-	-	2.48	1.66	-	2.03	1.56	1.07	-	1.52	1.23	1.01	2.91	2.12	1.47	2.48	2.03	1.55	1.06
22	1	22	-	-	-	1.40	-	-	1.14	-	-	-	-	-	-	1.50	1.09	-	1.24	-	-	-
23	1	23	-	-	-	1.52	-	-	1.23	-	-	-	-	-	-	1.71	1.20	-	1.43	1.14	-	-
24	1	24	-	-	-	-	-	-	-	-	-	-	1.44	1.38	1.33	1.58	1.45	1.35	1.51	1.43	1.36	1.29
26	1	26	1.43	1.03	-	2.69	1.82	1.05	2.21	1.70	1.16	-	1.61	1.25	1.00	2.82	1.97	1.23	2.35	1.86	1.36	-
27	1	27	-	-	-	1.78	1.23	-	1.45	1.11	-	-	1.38	1.17	-	2.16	1.65	1.22	1.86	1.56	1.25	-
29	1	29	-	-	-	1.03	-	-	-	-	-	-	-	-	-	1.08	-	-	-	-	-	-
30	1	30	4.07	3.07	2.09	8.48	6.34	3.98	7.27	5.89	4.28	2.37	4.18	3.19	2.22	8.56	6.43	4.09	7.35	5.98	4.39	2.50
40	2	9	-	-	-	1.45	-	-	1.17	-	-	-	-	-	-	1.72	1.27	-	1.46	1.18	-	-
44	2	13	-	-	-	1.43	-	-	1.16	-	-	-	-	-	-	1.74	1.26	-	1.47	1.21	-	-
45	2	14	-	-	-	1.02	-	-	-	-	-	-	-	-	-	1.36	1.04	-	1.17	-	-	-
61	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1.02	-	-	-	-	-	-
62	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	1.17	-	-	-	-	-	-
87	3	28	-	-	-	1.23	-	-	-	-	-	-	-	-	-	1.55	1.22	-	1.32	1.09	-	-
109	4	19	-	-	-	1.52	-	-	1.23	-	-	-	-	-	-	1.54	1.01	-	1.26	-	-	-
112	4	22	-	-	-	1.11	-	-	-	-	-	-	-	-	-	1.29	-	-	1.08	-	-	-
325	11	21	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	-	-	-	-	-	-
351	12	17	-	-	-	-	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-	-
352	12	18	-	-	-	1.53	1.04	-	1.24	-	-	-	-	-	-	1.72	1.26	-	1.45	1.16	-	-
353	12	19	-	-	-	2.02	1.37	-	1.65	1.26	-	-	-	-	-	2.15	1.50	-	1.78	1.40	1.03	-
354	12	20	-	-	-	1.04	-	-	-	-	-	-	-	-	-	1.20	-	-	1.01	-	-	-
355	12	21	-	-	-	1.39	-	-	1.13	-	-	-	-	-	-	1.66	1.14	-	1.40	1.14	-	-
356	12	22	-	-	-	1.61	1.03	-	1.31	-	-	-	1.62	1.42	1.27	2.43	1.90	1.51	2.15	1.86	1.57	1.26
Number of Days Δ dv >= 1.0			3	2	1	21	8	2	16	6	3	1	8	8	7	27	18	8	21	15	9	6
Maximum Δ dv			4.07	3.07	2.09	8.48	6.34	3.98	7.27	5.89	4.28	2.37	4.18	3.19	2.22	8.56	6.43	4.09	7.35	5.98	4.39	2.50

Table C.10.1 - Summary of Maximum Modeled NO_2 Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

		Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]
Alternative	WDR	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Low Emissions Cases	250	0.126	3.53	0.005	3.41	0.042	3.44	0.025	3.43
	150	0.087	3.49	0.004	3.40	0.030	3.43	0.018	3.42
	75	0.055	3.45	0.003	3.40	0.020	3.42	0.012	3.41
High Emissions Cases	250	0.306	3.71	0.012	3.41	0.097	3.50	0.058	3.46
	150	0.195	3.60	0.008	3.41	0.063	3.46	0.038	3.44
	75	0.101	3.50	0.004	3.40	0.038	3.44	0.021	3.42
Mitigation Runs	20[2]	0.245	3.65	0.009	3.41	0.077	3.48	0.046	3.45
	40[2]	0.184	3.58	0.007	3.41	0.058	3.46	0.035	3.43
	60[2]	0.123	3.52	0.005	3.40	0.039	3.44	0.023	3.42
	80[2]	0.061	3.46	0.002	3.40	0.019	3.42	0.012	3.41

		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]
Alternative	WDR	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Low Emissions Cases	250	0.002	3.40	0.001	3.40	0.001	3.40	0.001	3.40
	150	0.001	3.40	0.001	3.40	0.000	3.40	0.001	3.40
	75	0.001	3.40	0.000	3.40	0.000	3.40	0.000	3.40
High Emissions Cases	250	0.003	3.40	0.002	3.40	0.001	3.40	0.002	3.40
	150	0.002	3.40	0.001	3.40	0.001	3.40	0.001	3.40
	75	0.001	3.40	0.001	3.40	0.000	3.40	0.001	3.40
Mitigation Runs	20[2]	0.003	3.40	0.001	3.40	0.001	3.40	0.002	3.40
	40[2]	0.002	3.40	0.001	3.40	0.001	3.40	0.001	3.40
	60[2]	0.001	3.40	0.001	3.40	0.000	3.40	0.001	3.40
	80[2]	0.001	3.40	0.000	3.40	0.000	3.40	0.000	3.40

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 100 $\mu g/m^3$ on an annual basis.

[2] JIDP % Emissions Reductions

Table C.10.2 - Summary of Maximum Modeled Cumulative NO_2 Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

		Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]
Alternative	WDR	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Low Emissions Cases	250	0.237	3.64	0.016	3.42	0.068	3.47	0.049	3.45
	150	0.199	3.60	0.015	3.41	0.056	3.46	0.042	3.44
	75	0.167	3.57	0.014	3.41	0.046	3.45	0.036	3.44
High Emissions Cases	250	0.418	3.82	0.023	3.42	0.120	3.52	0.082	3.48
	150	0.307	3.71	0.019	3.42	0.087	3.49	0.062	3.46
	75	0.213	3.61	0.015	3.42	0.062	3.46	0.045	3.45
Mitigation Runs	20 [2]	0.356	3.76	0.020	3.42	0.101	3.50	0.071	3.47
	40 [2]	0.295	3.70	0.018	3.42	0.081	3.48	0.059	3.46
	60 [2]	0.234	3.63	0.016	3.42	0.063	3.46	0.047	3.45
	80 [2]	0.174	3.57	0.013	3.41	0.044	3.44	0.036	3.44

		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]
Alternative	WDR	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Low Emissions Cases	250	0.030	3.43	0.007	3.41	0.003	3.40	0.010	3.41
	150	0.030	3.43	0.007	3.41	0.003	3.40	0.010	3.41
	75	0.029	3.43	0.007	3.41	0.003	3.40	0.010	3.41
High Emissions Cases	250	0.032	3.43	0.007	3.41	0.004	3.40	0.010	3.41
	150	0.031	3.43	0.007	3.41	0.003	3.40	0.010	3.41
	75	0.030	3.43	0.007	3.41	0.003	3.40	0.010	3.41
Mitigation Runs	20 [2]	0.031	3.43	0.007	3.41	0.003	3.40	0.010	3.41
	40 [2]	0.031	3.43	0.007	3.41	0.003	3.40	0.010	3.41
	60 [2]	0.030	3.43	0.007	3.41	0.003	3.40	0.010	3.41
	80 [2]	0.029	3.43	0.007	3.41	0.003	3.40	0.010	3.41

1 Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 100 $\mu g/m^3$ on an annual basis.

2 JIDP % Emissions Reductions

Table C.10.3 - Summary of Maximum Modeled SO_2 Concentration ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

		Bridger Wilderness Class I						Fitzpatrick Wilderness Class I						Popo Agie Wilderness Class II						Wind River Roadless Area Class II					
		Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]		
Alternative	WDR	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
Low Emissions Cases	250	0.254	0.079	0.004	132.25	43.08	9.00	0.021	0.006	0.000	132.02	43.01	9.00	0.090	0.014	0.001	132.09	43.01	9.00	0.041	0.011	0.001	132.04	43.01	9.00
	150	0.157	0.050	0.002	132.16	43.05	9.00	0.014	0.004	0.000	132.01	43.00	9.00	0.060	0.009	0.001	132.06	43.01	9.00	0.026	0.007	0.001	132.03	43.01	9.00
	75	0.081	0.024	0.001	132.08	43.02	9.00	0.007	0.002	0.000	132.01	43.00	9.00	0.029	0.005	0.000	132.03	43.01	9.00	0.012	0.004	0.000	132.01	43.00	9.00
High Emissions Cases	250	1.232	0.382	0.019	133.23	43.38	9.02	0.102	0.028	0.001	132.10	43.03	9.00	0.437	0.068	0.006	132.44	43.07	9.01	0.196	0.055	0.004	132.20	43.06	9.00
	150	0.750	0.237	0.012	132.75	43.24	9.01	0.065	0.018	0.001	132.06	43.02	9.00	0.292	0.045	0.004	132.29	43.04	9.00	0.124	0.034	0.002	132.12	43.03	9.00
	75	0.382	0.113	0.005	132.38	43.11	9.01	0.033	0.009	0.000	132.03	43.01	9.00	0.142	0.027	0.002	132.14	43.03	9.00	0.059	0.019	0.001	132.06	43.02	9.00
Mitigation Runs	20[2]	0.985	0.306	0.015	132.99	43.31	9.02	0.082	0.022	0.001	132.08	43.02	9.00	0.350	0.055	0.005	132.35	43.05	9.00	0.156	0.044	0.003	132.16	43.04	9.00
	40[2]	0.739	0.229	0.012	132.74	43.23	9.01	0.061	0.017	0.001	132.06	43.02	9.00	0.262	0.041	0.004	132.26	43.04	9.00	0.117	0.033	0.002	132.12	43.03	9.00
	60[2]	0.493	0.153	0.008	132.49	43.15	9.01	0.041	0.011	0.000	132.04	43.01	9.00	0.175	0.027	0.002	132.17	43.03	9.00	0.078	0.022	0.002	132.08	43.02	9.00
	80[2]	0.246	0.076	0.004	132.25	43.08	9.00	0.020	0.006	0.000	132.02	43.01	9.00	0.087	0.014	0.001	132.09	43.01	9.00	0.039	0.011	0.001	132.04	43.01	9.00

		Grand Teton National Park Class I						Teton Wilderness Class I						Yellowstone National Park Class I						Washakie Wilderness Area Class I					
		Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]		
Alternative	WDR	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
Low Emissions Cases	250	0.009	0.003	0.000	132.01	43.00	9.00	0.008	0.001	0.000	132.01	43.00	9.00	0.003	0.001	0.000	132.00	43.00	9.00	0.007	0.002	0.000	132.01	43.00	9.00
	150	0.005	0.002	0.000	132.01	43.00	9.00	0.005	0.001	0.000	132.00	43.00	9.00	0.002	0.001	0.000	132.00	43.00	9.00	0.004	0.001	0.000	132.00	43.00	9.00
	75	0.003	0.001	0.000	132.00	43.00	9.00	0.003	0.000	0.000	132.00	43.00	9.00	0.001	0.000	0.000	132.00	43.00	9.00	0.003	0.001	0.000	132.00	43.00	9.00
High Emissions Cases	250	0.041	0.012	0.000	132.04	43.01	9.00	0.038	0.007	0.000	132.04	43.01	9.00	0.015	0.005	0.000	132.02	43.00	9.00	0.031	0.011	0.000	132.03	43.01	9.00
	150	0.025	0.008	0.000	132.03	43.01	9.00	0.023	0.004	0.000	132.02	43.00	9.00	0.009	0.003	0.000	132.01	43.00	9.00	0.020	0.006	0.000	132.02	43.01	9.00
	75	0.013	0.004	0.000	132.01	43.00	9.00	0.012	0.002	0.000	132.01	43.00	9.00	0.005	0.001	0.000	132.00	43.00	9.00	0.011	0.003	0.000	132.01	43.00	9.00
Mitigation Runs	20[2]	0.033	0.010	0.000	132.03	43.01	9.00	0.031	0.006	0.000	132.03	43.01	9.00	0.012	0.004	0.000	132.01	43.00	9.00	0.024	0.009	0.000	132.02	43.01	9.00
	40[2]	0.025	0.007	0.000	132.02	43.01	9.00	0.023	0.004	0.000	132.02	43.00	9.00	0.009	0.003	0.000	132.01	43.00	9.00	0.018	0.006	0.000	132.02	43.01	9.00
	60[2]	0.017	0.005	0.000	132.02	43.00	9.00	0.015	0.003	0.000	132.02	43.00	9.00	0.006	0.002	0.000	132.01	43.00	9.00	0.012	0.004	0.000	132.01	43.00	9.00
	80[2]	0.008	0.002	0.000	132.01	43.00	9.00	0.008	0.001	0.000	132.01	43.00	9.00	0.003	0.001	0.000	132.00	43.00	9.00	0.006	0.002	0.000	132.01	43.00	9.00

[1] Total concentration includes direct modeled impact and background concentration for comparison with NAAQS/WAAQS which are 1,300 $\mu g/m^3$ on a 3-hour basis, 365/260 $\mu g/m^3$ on a 24-hour basis and 80/60 $\mu g/m^3$ on an annual basis.

[2] JIDP % Emissions Reductions

Table C.10.4 - Summary of Maximum Modeled Cumulative SO_2 Concentration ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

		Bridger Wilderness Class I						Fitzpatrick Wilderness Class I						Popo Agie Wilderness Class II						Wind River Roadless Area Class II					
		Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]		
Alternative	WDR	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Amual
Low Emissions Cases	250	0.269	0.086	0.000	132.27	43.09	9.00	0.023	0.007	0.000	132.02	43.01	9.00	0.091	0.016	0.000	132.09	43.02	9.00	0.118	0.015	0.000	132.12	43.01	9.00
	150	0.170	0.056	0.000	132.17	43.06	9.00	0.020	0.007	0.000	132.02	43.01	9.00	0.062	0.011	0.000	132.06	43.01	9.00	0.110	0.014	0.000	132.11	43.01	9.00
	75	0.167	0.042	0.000	132.17	43.04	9.00	0.020	0.006	0.000	132.02	43.01	9.00	0.032	0.010	0.000	132.03	43.01	9.00	0.110	0.014	0.000	132.11	43.01	9.00
High Emissions Cases	250	**1.246**	**0.388**	0.014	133.25	43.39	9.01	0.086	0.023	0.000	132.09	43.02	9.00	0.438	0.070	0.002	132.44	43.07	9.00	0.196	0.046	0.001	132.20	43.05	9.00
	150	0.765	**0.243**	0.006	132.76	43.24	9.01	0.054	0.014	0.000	132.05	43.01	9.00	0.294	0.047	0.000	132.29	43.05	9.00	0.124	0.025	0.000	132.12	43.03	9.00
	75	0.395	0.119	0.000	132.39	43.12	9.00	0.029	0.008	0.000	132.03	43.01	9.00	0.144	0.028	0.000	132.14	43.03	9.00	0.110	0.014	0.000	132.11	43.01	9.00
Mitigation Runs	20[2]	1.000	**0.312**	0.010	133.00	43.31	9.01	0.069	0.019	0.000	132.07	43.02	9.00	0.351	0.056	0.001	132.35	43.06	9.00	0.157	0.035	0.000	132.16	43.04	9.00
	40[2]	0.753	**0.236**	0.006	132.75	43.24	9.01	0.052	0.014	0.000	132.05	43.01	9.00	0.263	0.043	0.000	132.26	43.04	9.00	0.133	0.024	0.000	132.13	43.02	9.00
	60[2]	0.507	0.159	0.002	132.51	43.16	9.00	0.034	0.009	0.000	132.03	43.01	9.00	0.176	0.029	0.000	132.18	43.03	9.00	0.125	0.016	0.000	132.13	43.02	9.00
	80[2]	0.261	0.083	0.000	132.26	43.08	9.00	0.023	0.007	0.000	132.02	43.01	9.00	0.089	0.016	0.000	132.09	43.02	9.00	0.117	0.015	0.000	132.12	43.01	9.00

		Grand Teton National Park Class I						Teton Wilderness Class I						Yellowstone National Park Class I						Washakie Wilderness Area Class I					
		Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]		
Alternative	WDR	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
Low Emissions Cases	250	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
	150	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
	75	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
High Emissions Cases	250	0.201	0.038	0.007	132.20	43.04	9.01	0.043	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.010	0.000	132.02	43.01	9.00
	150	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
	75	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
Mitigation Runs	20[2]	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
	40[2]	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
	60[2]	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00
	80[2]	0.201	0.038	0.007	132.20	43.04	9.01	0.037	0.012	0.001	132.04	43.01	9.00	0.075	0.013	0.001	132.07	43.01	9.00	0.022	0.008	0.000	132.02	43.01	9.00

1 Total concentration includes direct modeled impact and background concentration for comparison with NAAQS/WAAQS which are 1,300 $\mu g/m^3$ on a 3-hour basis, 365/260 $\mu g/m^3$ on a 24-hour basis and 80/60 $\mu g/m^3$ on an annual basis.

2 JIDP % Emissions Reductions

Table C.10.5 - Summary of Maximum Modeled PM_{10} Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

		Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	1.502	0.058	34.50	16.06	0.168	0.006	33.17	16.01	0.237	0.016	33.24	16.02	0.182	0.012	33.18	16.01
	150	1.195	0.047	34.19	16.05	0.128	0.005	33.13	16.00	0.201	0.013	33.20	16.01	0.157	0.010	33.16	16.01
	75	0.937	0.038	33.94	16.04	0.097	0.004	33.10	16.00	0.171	0.010	33.17	16.01	0.137	0.008	33.14	16.01
High Emissions Case	250	3.165	0.117	36.17	16.12	0.396	0.012	33.40	16.01	0.414	0.034	33.41	16.03	0.319	0.023	33.32	16.02
	150	2.199	0.082	35.20	16.08	0.264	0.008	33.26	16.01	0.296	0.023	33.30	16.02	0.215	0.016	33.21	16.02
	75	1.393	0.054	34.39	16.05	0.161	0.005	33.16	16.01	0.211	0.015	33.21	16.02	0.156	0.011	33.16	16.01
Mitigation Runs	20[2]	2.532	0.094	35.53	16.09	0.317	0.009	33.32	16.01	0.331	0.027	33.33	16.03	0.255	0.018	33.26	16.02
	40[2]	1.899	0.070	34.90	16.07	0.238	0.007	33.24	16.01	0.248	0.020	33.25	16.02	0.191	0.014	33.19	16.01
	60[2]	1.266	0.047	34.27	16.05	0.158	0.005	33.16	16.00	0.165	0.013	33.17	16.01	0.128	0.009	33.13	16.01
	80[2]	0.633	0.023	33.63	16.02	0.079	0.002	33.08	16.00	0.083	0.007	33.08	16.01	0.064	0.005	33.06	16.00

		Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	0.088	0.003	33.09	16.00	0.040	0.002	33.04	16.00	0.041	0.001	33.04	16.00	0.072	0.002	33.07	16.00
	150	0.067	0.002	33.07	16.00	0.031	0.001	33.03	16.00	0.031	0.001	33.03	16.00	0.055	0.001	33.05	16.00
	75	0.048	0.001	33.05	16.00	0.027	0.001	33.03	16.00	0.022	0.001	33.02	16.00	0.040	0.001	33.04	16.00
High Emissions Case	250	0.182	0.005	33.18	16.01	0.081	0.003	33.08	16.00	0.081	0.002	33.08	16.00	0.145	0.004	33.15	16.00
	150	0.125	0.004	33.12	16.00	0.055	0.002	33.05	16.00	0.055	0.001	33.05	16.00	0.100	0.003	33.10	16.00
	75	0.077	0.002	33.08	16.00	0.034	0.001	33.03	16.00	0.033	0.001	33.03	16.00	0.061	0.002	33.06	16.00
Mitigation Runs	20[2]	0.146	0.004	33.15	16.00	0.065	0.003	33.06	16.00	0.065	0.002	33.06	16.00	0.116	0.003	33.12	16.00
	40[2]	0.109	0.003	33.11	16.00	0.049	0.002	33.05	16.00	0.049	0.001	33.05	16.00	0.087	0.002	33.09	16.00
	60[2]	0.073	0.002	33.07	16.00	0.032	0.001	33.03	16.00	0.032	0.001	33.03	16.00	0.058	0.002	33.06	16.00
	80[2]	0.036	0.001	33.04	16.00	0.016	0.001	33.02	16.00	0.016	0.000	33.02	16.00	0.029	0.001	33.03	16.00

[1] Total Concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS whaich are 150 $\mu g/m^3$ on a 24-hour basis and 50 $\mu g/m^3$ on an annual basis.

[2] JIDP % Emissions Reductions

Table C.10.6 - Summary of Maximum Modeled Cumulative PM_{10} Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

		Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	1.661	0.075	34.66	16.08	0.195	0.011	33.20	16.01	0.293	0.022	33.29	16.02	0.287	0.020	33.29	16.02
	150	1.354	0.064	34.35	16.06	0.172	0.010	33.17	16.01	0.256	0.019	33.26	16.02	0.264	0.017	33.26	16.02
	75	1.096	0.055	34.10	16.06	0.161	0.009	33.16	16.01	0.226	0.017	33.23	16.02	0.245	0.016	33.24	16.02
High Emissions Case	250	3.319	0.134	36.32	16.13	0.406	0.017	33.41	16.02	0.462	0.040	33.46	16.04	0.371	0.031	33.37	16.03
	150	2.353	0.099	35.35	16.10	0.273	0.013	33.27	16.01	0.351	0.029	33.35	16.03	0.316	0.024	33.32	16.02
	75	1.547	0.071	34.55	16.07	0.179	0.010	33.18	16.01	0.266	0.021	33.27	16.02	0.270	0.019	33.27	16.02
Mitigation Runs	20[2]	2.686	0.111	35.69	16.11	0.326	0.014	33.33	16.01	0.379	0.033	33.38	16.03	0.335	0.026	33.34	16.03
	40[2]	2.053	0.087	35.05	16.09	0.247	0.012	33.25	16.01	0.297	0.026	33.30	16.03	0.300	0.022	33.30	16.02
	60[2]	1.420	0.064	34.42	16.06	0.173	0.010	33.17	16.01	0.222	0.020	33.22	16.02	0.265	0.017	33.26	16.02
	80[2]	0.787	0.041	33.79	16.04	0.151	0.007	33.15	16.01	0.180	0.013	33.18	16.01	0.230	0.012	33.23	16.01

		Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	0.136	0.015	33.14	16.01	0.077	0.006	33.08	16.01	0.062	0.005	33.06	16.00	0.087	0.005	33.09	16.00
	150	0.133	0.014	33.13	16.01	0.067	0.006	33.07	16.01	0.056	0.005	33.06	16.00	0.070	0.004	33.07	16.00
	75	0.129	0.014	33.13	16.01	0.060	0.006	33.06	16.01	0.052	0.004	33.05	16.00	0.059	0.004	33.06	16.00
High Emissions Case	250	0.227	0.018	33.23	16.02	0.120	0.008	33.12	16.01	0.098	0.006	33.10	16.01	0.160	0.007	33.16	16.01
	150	0.170	0.016	33.17	16.02	0.093	0.007	33.09	16.01	0.071	0.005	33.07	16.01	0.115	0.006	33.11	16.01
	75	0.130	0.015	33.13	16.01	0.073	0.006	33.07	16.01	0.058	0.005	33.06	16.00	0.077	0.005	33.08	16.00
Mitigation Runs	20[2]	0.190	0.016	33.19	16.02	0.104	0.007	33.10	16.01	0.082	0.005	33.08	16.01	0.131	0.006	33.13	16.01
	40[2]	0.154	0.015	33.15	16.02	0.088	0.007	33.09	16.01	0.067	0.005	33.07	16.00	0.103	0.005	33.10	16.01
	60[2]	0.129	0.014	33.13	16.01	0.072	0.006	33.07	16.01	0.058	0.005	33.06	16.00	0.074	0.004	33.07	16.00
	80[2]	0.125	0.013	33.13	16.01	0.056	0.006	33.06	16.01	0.050	0.004	33.05	16.00	0.054	0.004	33.05	16.00

1 Total Concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS whaich are 150 $\mu g/m^3$ on a 24-hour basis and 50 $\mu g/m^3$ on an annual basis.

2 JIDP % Emissions Reductions

Table C.10.7 - Summary of Maximum Modeled $PM_{2.5}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources

		Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	1.502	0.058	14.50	5.06	0.168	0.006	13.17	5.01	0.237	0.016	13.24	5.02	0.182	0.012	13.18	5.01
	150	1.195	0.047	14.19	5.05	0.128	0.005	13.13	5.00	0.201	0.013	13.20	5.01	0.157	0.010	13.16	5.01
	75	0.937	0.038	13.94	5.04	0.097	0.004	13.10	5.00	0.171	0.010	13.17	5.01	0.137	0.008	13.14	5.01
High Emissions Case	250	3.165	0.117	16.17	5.12	0.396	0.012	13.40	5.01	0.414	0.034	13.41	5.03	0.319	0.023	13.32	5.02
	150	2.199	0.082	15.20	5.08	0.264	0.008	13.26	5.01	0.296	0.023	13.30	5.02	0.215	0.016	13.21	5.02
	75	1.393	0.054	14.39	5.05	0.161	0.005	13.16	5.01	0.211	0.015	13.21	5.02	0.156	0.011	13.16	5.01
Mitigation Runs	20[2]	2.532	0.094	15.53	5.09	0.317	0.009	13.32	5.01	0.331	0.027	13.33	5.03	0.255	0.018	13.26	5.02
	40[2]	1.899	0.070	14.90	5.07	0.238	0.007	13.24	5.01	0.248	0.020	13.25	5.02	0.191	0.014	13.19	5.01
	60[2]	1.266	0.047	14.27	5.05	0.158	0.005	13.16	5.00	0.165	0.013	13.17	5.01	0.128	0.009	13.13	5.01
	80[2]	0.633	0.023	13.63	5.02	0.079	0.002	13.08	5.00	0.083	0.007	13.08	5.01	0.064	0.005	13.06	5.00

		Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	0.088	0.003	13.09	5.00	0.040	0.002	13.04	5.00	0.041	0.001	13.04	5.00	0.072	0.002	13.07	5.00
	150	0.067	0.002	13.07	5.00	0.031	0.001	13.03	5.00	0.031	0.001	13.03	5.00	0.055	0.001	13.05	5.00
	75	0.048	0.001	13.05	5.00	0.027	0.001	13.03	5.00	0.022	0.001	13.02	5.00	0.040	0.001	13.04	5.00
High Emissions Case	250	0.182	0.005	13.18	5.01	0.081	0.003	13.08	5.00	0.081	0.002	13.08	5.00	0.145	0.004	13.15	5.00
	150	0.125	0.004	13.12	5.00	0.055	0.002	13.05	5.00	0.055	0.001	13.05	5.00	0.100	0.003	13.10	5.00
	75	0.077	0.002	13.08	5.00	0.034	0.001	13.03	5.00	0.033	0.001	13.03	5.00	0.061	0.002	13.06	5.00
Mitigation Runs	20[2]	0.146	0.004	13.15	5.00	0.065	0.003	13.06	5.00	0.065	0.002	13.06	5.00	0.116	0.003	13.12	5.00
	40[2]	0.109	0.003	13.11	5.00	0.049	0.002	13.05	5.00	0.049	0.001	13.05	5.00	0.087	0.002	13.09	5.00
	60[2]	0.073	0.002	13.07	5.00	0.032	0.001	13.03	5.00	0.032	0.001	13.03	5.00	0.058	0.002	13.06	5.00
	80[2]	0.036	0.001	13.04	5.00	0.016	0.001	13.02	5.00	0.016	0.000	13.02	5.00	0.029	0.001	13.03	5.00

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 65 $\mu g/m^3$ on a 24-hour basis and 15 $\mu g/m^3$ on an annual basis.

[2] JIDP % Emissions Reductions

Table C.10.8 - Summary of Maximum Modeled Cumulative $PM_{2.5}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources

		Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	1.659	0.076	14.66	5.08	0.195	0.012	13.20	5.01	0.291	0.025	13.29	5.03	0.278	0.021	13.28	5.02
	150	1.351	0.065	14.35	5.07	0.166	0.010	13.17	5.01	0.254	0.021	13.25	5.02	0.255	0.019	13.26	5.02
	75	1.094	0.056	14.09	5.06	0.155	0.009	13.16	5.01	0.224	0.019	13.22	5.02	0.236	0.017	13.24	5.02
High Emissions Case	250	3.317	0.135	16.32	5.14	0.406	0.017	13.41	5.02	0.460	0.042	13.46	5.04	0.361	0.032	13.36	5.03
	150	2.351	0.100	15.35	5.10	0.273	0.014	13.27	5.01	0.349	0.032	13.35	5.03	0.306	0.025	13.31	5.03
	75	1.545	0.072	14.54	5.07	0.179	0.011	13.18	5.01	0.264	0.024	13.26	5.02	0.261	0.020	13.26	5.02
Mitigation Runs	20[2]	2.684	0.112	15.68	5.11	0.326	0.015	13.33	5.02	0.377	0.036	13.38	5.04	0.326	0.027	13.33	5.03
	40[2]	2.051	0.088	15.05	5.09	0.247	0.013	13.25	5.01	0.295	0.029	13.29	5.03	0.291	0.023	13.29	5.02
	60[2]	1.418	0.065	14.42	5.06	0.169	0.010	13.17	5.01	0.216	0.022	13.22	5.02	0.256	0.018	13.26	5.02
	80[2]	0.785	0.042	13.79	5.04	0.145	0.008	13.14	5.01	0.170	0.015	13.17	5.02	0.221	0.014	13.22	5.01

		Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	0.134	0.015	13.13	5.02	0.073	0.007	13.07	5.01	0.060	0.005	13.06	5.01	0.087	0.005	13.09	5.01
	150	0.125	0.015	13.13	5.01	0.063	0.006	13.06	5.01	0.055	0.005	13.06	5.00	0.070	0.005	13.07	5.00
	75	0.122	0.014	13.12	5.01	0.056	0.006	13.06	5.01	0.051	0.005	13.05	5.00	0.059	0.004	13.06	5.00
High Emissions Case	250	0.229	0.018	13.23	5.02	0.117	0.008	13.12	5.01	0.100	0.006	13.10	5.01	0.160	0.007	13.16	5.01
	150	0.171	0.016	13.17	5.02	0.089	0.007	13.09	5.01	0.074	0.005	13.07	5.01	0.115	0.006	13.11	5.01
	75	0.123	0.015	13.12	5.02	0.069	0.007	13.07	5.01	0.057	0.005	13.06	5.00	0.077	0.005	13.08	5.00
Mitigation Runs	20[2]	0.192	0.017	13.19	5.02	0.100	0.008	13.10	5.01	0.084	0.006	13.08	5.01	0.131	0.006	13.13	5.01
	40[2]	0.156	0.016	13.16	5.02	0.084	0.007	13.08	5.01	0.068	0.005	13.07	5.01	0.103	0.006	13.10	5.01
	60[2]	0.121	0.015	13.12	5.01	0.068	0.007	13.07	5.01	0.057	0.005	13.06	5.00	0.074	0.005	13.07	5.00
	80[2]	0.118	0.014	13.12	5.01	0.052	0.006	13.05	5.01	0.050	0.004	13.05	5.00	0.054	0.004	13.05	5.00

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 65 $\mu g/m^3$ on a 24-hour basis and 15 $\mu g/m^3$ on an annual basis.

[2] JIDP % Emissions Reductions

Table C.10.9 - Summary of Maximum Modeled In-field Pollutant Concentrations ($\mu g/m^3$) from Direct Project Sources Within the JIDPA Compared to NAAQS/WAAQS

		NO_2			SO_2									PM_{10}						$PM_{2.5}$					
		Direct Modeled Impact	Total Concentration[1]	NAAQS/WAAQS	Direct Modeled Impact			Total Concentration[1]			NAAQS/WAAQS			Direct Modeled Impact		Total Concentration[1]		NAAQS/WAAQS		Direct Modeled Impact		Total Concentration[1]		NAAQS/WAAQS	
Alternative	WDR	Annual	Annual	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	13.0	16.4	100	20.3	4.1	0.4	152.3	47.1	9.4	1,300	365/260	80/60	113.0	15.8	146.0	31.8	150	50	21.3	2.9	34.3	7.9	65	15
	150	11.5	14.9	100	15.4	3.8	0.4	147.4	46.8	9.4	1,300	365/260	80/60	103.8	14.6	136.8	30.6	150	50	19.2	2.6	32.2	7.6	65	15
	75	9.6	13.0	100	15.4	3.8	0.3	147.4	46.8	9.3	1,300	365/260	80/60	97.0	13.6	130.0	29.6	150	50	17.7	2.4	30.7	7.4	65	15
High Emissions Case	250	34.2	37.6	100	99.9	20.3	2.0	231.9	63.3	11.0	1,300	365/260	80/60	116.1	17.5	149.1	33.5	150	50	25.2	4.7	38.2	9.7	65	15
	150	30.7	34.1	100	75.8	18.5	1.8	207.8	61.5	10.8	1,300	365/260	80/60	104.9	16.1	137.9	32.1	150	50	22.0	4.2	35.0	9.2	65	15
	75	24.8	28.2	100	75.8	18.5	1.4	207.8	61.5	10.4	1,300	365/260	80/60	97.1	14.9	130.1	30.9	150	50	21.9	3.8	34.9	8.8	65	15
Mitigation Runs	20[2]	27.3	30.7	100	79.9	16.2	1.6	211.9	59.2	10.6	1,300	365/260	80/60	92.9	14.0	125.9	30.0	150	50	20.1	3.7	33.1	8.7	65	15
	40[2]	20.5	23.9	100	59.9	12.2	1.2	191.9	55.2	10.2	1,301	365/261	80/61	69.7	10.5	102.7	26.5	150	50	15.1	2.8	28.1	7.8	65	15
	60[2]	13.7	17.1	100	39.9	8.1	0.8	171.9	51.1	9.8	1,300	365/260	80/60	46.5	7.0	79.5	23.0	150	50	10.1	1.9	23.1	6.9	65	15
	80[2]	6.8	10.2	100	20.0	4.1	0.4	152.0	47.1	9.4	1,300	365/260	80/60	23.2	3.5	56.2	19.5	150	50	5.0	0.9	18.0	5.9	65	15

[1] Total concentration includes direct modeled impact and background concentration.

[2] JIDP % Emissions Reductions

Table C.10.10 - Summary of Maximum Modeled Cumulative In-field Pollutant Concentrations ($\mu g/m^3$) from Direct Project and Regional Sources Within the JIDPA Compared to NAAQS/WAAQS

		NO_2			SO_2									PM_{10}						$PM_{2.5}$					
		Direct Modeled Impact	Total Concentration[1]	NAAQS/WAAQS	Direct Modeled Impact			Total Concentration[1]			NAAQS/WAAQS			Direct Modeled Impact		Total Concentration[1]		NAAQS/WAAQS		Direct Modeled Impact		Total Concentration[1]		NAAQS/WAAQS	
Alternative	WDR	Annual	Annual	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Low Emissions Case	250	13.3	16.7	100	20.2	4.0	0.4	152.2	47.0	9.4	1,300	365/260	80/60	113.1	15.8	146.1	31.8	150	50	21.4	2.9	34.4	7.9	65	15
	150	11.7	15.1	100	15.4	3.6	0.4	147.4	46.6	9.4	1,300	365/260	80/60	103.9	14.6	136.9	30.6	150	50	19.3	2.6	32.3	7.6	65	15
	75	9.9	13.3	100	15.4	3.6	0.3	147.4	46.6	9.3	1,300	365/260	80/60	97.1	13.6	130.1	29.6	150	50	17.8	2.4	30.8	7.4	65	15
High Emissions Case	250	34.4	37.8	100	99.8	20.2	1.9	231.8	63.2	10.9	1,300	365/260	80/60	116.3	17.5	149.3	33.5	150	50	25.1	4.7	38.1	9.7	65	15
	150	31.0	34.4	100	75.8	18.4	1.8	207.8	61.4	10.8	1,300	365/260	80/60	105.0	16.1	138.0	32.1	150	50	22.0	4.2	35.0	9.2	65	15
	75	25.1	28.5	100	75.8	18.4	1.4	207.8	61.4	10.4	1,300	365/260	80/60	97.3	14.9	130.3	30.9	150	50	21.9	3.8	34.9	8.8	65	15
Mitigation Runs	20[2]	27.6	31.0	100	79.8	16.1	1.5	211.8	59.1	10.5	1,300	365/260	80/60	93.0	14.0	126.0	30.0	150	50	20.1	3.8	33.1	8.8	65	15
	40[2]	20.8	24.2	100	59.8	12.1	1.2	191.8	55.1	10.2	1,301	365/261	80/61	69.8	10.5	102.8	26.5	150	50	15.0	2.8	28.0	7.8	65	15
	60[2]	13.9	17.3	100	39.8	8.0	0.8	171.8	51.0	9.8	1,300	365/260	80/60	46.6	7.0	79.6	23.0	150	50	10.0	1.9	23.0	6.9	65	15
	80[2]	7.1	10.5	100	19.9	3.9	0.4	151.9	46.9	9.4	1,300	365/260	80/60	23.3	3.5	56.3	19.5	150	50	5.0	1.0	18.0	6.0	65	15

[1] Total concentration includes direct modeled impact and background concentration.

[2] JIDP % Emissions Reductions

Table C.10.11 - Summary of Maximum Modeled Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources[1]

Alternative	WDR	Bridger Wilderness Class I	Fitzpatrick Wilderness Class I	Popo Agie Wilderness Class II	Wind River Roadless Area Class II	Grand Teton National Park Class I	Teton Wilderness Class I	Yellowstone National Park Class I	Washakie Wilderness Area Class I
Low Emissions Case	250	0.0334	0.0026	0.0159	0.0095	0.0011	0.0005	0.0004	0.0007
	150	0.0235	0.0018	0.0112	0.0067	0.0008	0.0004	0.0003	0.0005
	75	0.0160	0.0012	0.0075	0.0043	0.0005	0.0002	0.0002	0.0003
High Emissions Case	250	0.0770	0.0055	0.0354	0.0214	0.0024	0.0011	0.0008	0.0014
	150	0.0506	0.0036	0.0232	0.0140	0.0015	0.0007	0.0005	0.0009
	75	0.0312	0.0020	0.0137	0.0077	0.0009	0.0004	0.0003	0.0005
Mitigation Runs	20[2]	0.0616	0.0044	0.0283	0.0172	0.0019	0.0009	0.0007	0.0011
	40[2]	0.0462	0.0033	0.0213	0.0129	0.0014	0.0007	0.0005	0.0009
	60[2]	0.0308	0.0022	0.0142	0.0086	0.0010	0.0005	0.0003	0.0006
	80[2]	0.0154	0.0011	0.0071	0.0043	0.0005	0.0002	0.0002	0.0003

1 Nitrogen deposition analysis threshold for direct project impacts = 0.005 kg/ha-yr.

2 JIDP % Emissions Reductions

Table C.10.12 - Summary of Maximum Modeled Total Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources[1]

		Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
Alternative	WDR	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]
Low Emissions Case	250	0.0555	1.5555	0.0078	1.5078	0.0280	1.5280	0.0201	1.5201
	150	0.0473	1.5473	0.0070	1.5070	0.0234	1.5234	0.0173	1.5173
	75	0.0404	1.5404	0.0064	1.5064	0.0197	1.5197	0.0150	1.5150
High Emissions Case	250	0.0929	1.5929	0.0107	1.5107	0.0476	1.5476	0.0321	1.5321
	150	0.0697	1.5697	0.0088	1.5088	0.0354	1.5354	0.0247	1.5247
	75	0.0502	1.5502	0.0072	1.5072	0.0258	1.5258	0.0184	1.5184
Mitigation Runs	20[2]	0.0801	1.5801	0.0096	1.5096	0.0405	1.5405	0.0278	1.5278
	40[2]	0.0672	1.5672	0.0085	1.5085	0.0334	1.5334	0.0235	1.5235
	60[2]	0.0544	1.5544	0.0074	1.5074	0.0264	1.5264	0.0192	1.5192
	80[2]	0.0415	1.5415	0.0063	1.5063	0.0193	1.5193	0.0149	1.5149

		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
Alternative	WDR	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]
Low Emissions Case	250	0.0103	1.5103	0.0036	1.5036	0.0026	1.5026	0.0040	1.5040
	150	0.0100	1.5100	0.0035	1.5035	0.0025	1.5025	0.0039	1.5039
	75	0.0098	1.5098	0.0033	1.5033	0.0024	1.5024	0.0037	1.5037
High Emissions Case	250	0.0116	1.5116	0.0042	1.5042	0.0030	1.5030	0.0046	1.5046
	150	0.0107	1.5107	0.0038	1.5038	0.0028	1.5028	0.0042	1.5042
	75	0.0101	1.5101	0.0035	1.5035	0.0025	1.5025	0.0039	1.5039
Mitigation Runs	20[2]	0.0111	1.5111	0.0040	1.5040	0.0029	1.5029	0.0044	1.5044
	40[2]	0.0107	1.5107	0.0038	1.5038	0.0027	1.5027	0.0041	1.5041
	60[2]	0.0102	1.5102	0.0035	1.5035	0.0026	1.5026	0.0039	1.5039
	80[2]	0.0097	1.5097	0.0033	1.5033	0.0024	1.5024	0.0037	1.5037

1 Nitrogen deposition analysis level of concern for total impacts - 3.00 kg/ha-yr.
2 JIDP % Emissions Reductions
3 Includes N deposition value of 1.5 kg/ha-yr measured near Pinedale for the year 2001.

Table C.10.13 - Summary of Maximum Modeled Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources[1]

Alternative	WDR	Bridger Wilderness Class I	Fitzpatrick Wilderness Class I	Popo Agie Wilderness Class II	Wind River Roadless Area Class II	Grand Teton National Park Class I	Teton Wilderness Class I	Yellowstone National Park Class I	Washakie Wilderness Area Class I
Low Emissions Case	250	0.00160	0.00016	0.00081	0.00047	0.00007	0.00004	0.00003	0.00005
	150	0.00100	0.00010	0.00050	0.00029	0.00004	0.00002	0.00002	0.00003
	75	0.00057	0.00005	0.00027	0.00014	0.00002	0.00001	0.00001	0.00001
High Emissions Case	250	0.00770	0.00079	0.00390	0.00226	0.00035	0.00020	0.00013	0.00023
	150	0.00477	0.00048	0.00239	0.00138	0.00021	0.00012	0.00008	0.00014
	75	0.00265	0.00023	0.00125	0.00065	0.00010	0.00006	0.00004	0.00007
Mitigation Runs	20[2]	0.00616	0.00063	0.00312	0.00181	0.00028	0.00016	0.00010	0.00018
	40[2]	0.00462	0.00047	0.00234	0.00136	0.00021	0.00012	0.00008	0.00014
	60[2]	0.00308	0.00032	0.00156	0.00091	0.00014	0.00008	0.00005	0.00009
	80[2]	0.00154	0.00016	0.00078	0.00045	0.00007	0.00004	0.00003	0.00005

1 Sulfur deposition analysis threshold for direct Project impacts = 0.005 kg/ha-yr.
2 JIDP % Emissions Reductions

Table C.10.14 - Summary of Maximum Modeled Total Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources[1]

		Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
Alternative	WDR	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]
Low Emissions Case	250	-0.0009	0.7491	-0.0008	0.7492	-0.0021	0.7479	-0.0011	0.7489
	150	-0.0009	0.7491	-0.0008	0.7492	-0.0023	0.7477	-0.0011	0.7489
	75	-0.0009	0.7491	-0.0008	0.7492	-0.0025	0.7475	-0.0011	0.7489
High Emissions Case	250	0.0041	0.7541	-0.0005	0.7495	0.0003	0.7503	-0.0004	0.7496
	150	0.0011	0.7511	-0.0006	0.7494	-0.0009	0.7491	-0.0010	0.7490
	75	-0.0008	0.7492	-0.0007	0.7493	-0.0018	0.7482	-0.0011	0.7489
Mitigation Runs	20[2]	0.0025	0.7525	-0.0006	0.7494	-0.0003	0.7497	-0.0008	0.7492
	40[2]	0.0010	0.7510	-0.0006	0.7494	-0.0009	0.7491	-0.0010	0.7490
	60[2]	-0.0005	0.7495	-0.0007	0.7493	-0.0015	0.7485	-0.0010	0.7490
	80[2]	-0.0009	0.7491	-0.0008	0.7492	-0.0021	0.7479	-0.0011	0.7489

		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
Alternative	WDR	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]	Modeled Impact	Total Impact[3]
Low Emissions Case	250	0.0034	0.7534	0.0009	0.7509	0.0010	0.7510	-0.0001	0.7499
	150	0.0034	0.7534	0.0008	0.7508	0.0010	0.7510	-0.0001	0.7499
	75	0.0034	0.7534	0.0008	0.7508	0.0010	0.7510	-0.0001	0.7499
High Emissions Case	250	0.0037	0.7537	0.0010	0.7510	0.0011	0.7511	-0.0001	0.7499
	150	0.0036	0.7536	0.0009	0.7509	0.0011	0.7511	-0.0001	0.7499
	75	0.0035	0.7535	0.0009	0.7509	0.0010	0.7510	-0.0001	0.7499
Mitigation Runs	20[2]	0.0037	0.7537	0.0010	0.7510	0.0011	0.7511	-0.0001	0.7499
	40[2]	0.0036	0.7536	0.0009	0.7509	0.0011	0.7511	-0.0001	0.7499
	60[2]	0.0035	0.7535	0.0009	0.7509	0.0010	0.7510	-0.0001	0.7499
	80[2]	0.0034	0.7534	0.0009	0.7509	0.0010	0.7510	-0.0001	0.7499

[1] Sulfur deposition analysis level of concern for total impacts = 5.0 kg/ha-y.

[2] JIDP % Emissions Reductions

[3] Includes S deposition value of 0.75 kg/ha-yr measured near Pinedale for the year 2001.

Note: Negative results reflect a net decrease in cumulative SO_2 emissions.

Table C.10.15 - Summary of Maximum Modeled Change in ANC (μeq/L) at Acid Sensitive Lakes from Direct Project Sources

		Black Joe Lake		Deep Lake		Hobbs Lake		Lazy Boy Lake		Upper Frozen Lake		Lower Saddlebag		Ross Lake	
		Bridger Wilderness Class I		Bridger Wilderness Class I		Bridger Wilderness Class I		Bridger Wilderness Class I		Bridger Wilderness Class I		Popo Agie Wilderness Class II		Fitzpatrick Wilderness Class I	
Alternative	WDR	ANC Change (μeq/L)	ANC Change (%)	ANC Change (μeq/L)	ANC Change (%)	ANC Change (μeq/L)	ANC Change (%)	ANC Change (μeq/L)	ANC Change (%)	ANC Change (μeq/L)	ANC Change (%)	ANC Change (μeq/L)	ANC Change (%)	ANC Change (μeq/L)	ANC Change (%)
Level of Acceptable Change (meq/L)	--	6.70	--	5.99	--	6.99	--	1.00	--	1.00	--	5.55	--	5.35	--
Background[1]	--	67.0	--	59.9	--	69.9	--	18.8	--	5.0	--	55.5	--	53.5	--
Low Emissions Case	250	0.100	0.15%	0.109	0.18%	0.021	0.03%	0.007	0.04%	0.135	2.71%	0.124	0.22%	0.007	0.01%
	150	0.071	0.11%	0.077	0.13%	0.014	0.02%	0.005	0.03%	0.095	1.90%	0.087	0.16%	0.005	0.01%
	75	0.047	0.07%	0.051	0.08%	0.009	0.01%	0.003	0.02%	0.062	1.23%	0.058	0.10%	0.003	0.01%
High Emissions Case	250	0.234	0.35%	0.257	0.43%	0.048	0.07%	0.016	0.08%	0.322	6.43%	0.283	0.51%	0.015	0.03%
	150	0.151	0.23%	0.167	0.28%	0.030	0.04%	0.010	0.05%	0.210	4.19%	0.183	0.33%	0.010	0.02%
	75	0.087	0.13%	0.093	0.16%	0.016	0.02%	0.006	0.03%	0.117	2.33%	0.109	0.20%	0.006	0.01%
Mitigation Runs	20[1]	0.187	0.28%	0.206	0.34%	0.038	0.05%	0.012	0.07%	0.257	5.15%	0.226	0.41%	0.012	0.02%
	40[1]	0.141	0.21%	0.154	0.26%	0.029	0.04%	0.009	0.05%	0.193	3.86%	0.170	0.31%	0.009	0.02%
	60[1]	0.094	0.14%	0.103	0.17%	0.019	0.03%	0.006	0.03%	0.129	2.57%	0.113	0.20%	0.006	0.01%
	80[1]	0.047	0.07%	0.051	0.09%	0.010	0.01%	0.003	0.02%	0.064	1.29%	0.057	0.10%	0.003	0.01%

[1] JIDP % Emissions Reductions

Table C.10.16 - Summary of Maximum Modeled Cumulative Change in ANC (μeq/L) at Acid Sensitive Lakes from Direct Project and Regional Sources

		Black Joe Lake Bridger Wilderness Class I		Deep Lake Bridger Wilderness Class I		Hobbs Lake Bridger Wilderness Class I		Lazy Boy Lake Bridger Wilderness Class I	
Alternative	WDR	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)
Level of Acceptable Change (meq/L)	--	6.70	--	5.99	--	6.99	--	1.00	--
Background ANC	--	67.0	--	59.9	--	69.9	--	18.8	--
Low Emissions Case	250	0.180	0.27%	0.190	0.32%	0.061	0.09%	0.031	0.17%
	150	0.152	0.23%	0.160	0.27%	0.055	0.08%	0.029	0.16%
	75	0.130	0.19%	0.135	0.23%	0.050	0.07%	0.028	0.15%
High Emissions Case	250	0.299	0.45%	0.321	0.54%	0.084	0.12%	0.038	0.20%
	150	0.224	0.33%	0.239	0.40%	0.068	0.10%	0.034	0.18%
	75	0.166	0.25%	0.172	0.29%	0.057	0.08%	0.030	0.16%
Mitigation Runs	20 [1]	0.256	0.38%	0.274	0.46%	0.075	0.11%	0.036	0.19%
	40 [1]	0.213	0.32%	0.227	0.38%	0.067	0.10%	0.033	0.17%
	60 [1]	0.170	0.25%	0.180	0.30%	0.059	0.08%	0.030	0.16%
	80 [1]	0.127	0.19%	0.133	0.22%	0.050	0.07%	0.028	0.15%

		Upper Frozen Lake Bridger Wilderness Class I		Lower Saddlebag Popo Agie Wilderness Class II		Ross Lake Fitzpatrick Wilderness Class I	
Alternative	WDR	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)
Level of Acceptable Change (meq/L)	--	1.00	--	5.55	--	5.35	--
Background ANC	--	5.0	--	55.5	--	53.5	--
Low Emissions Case	250	0.220	4.40%	0.215	0.39%	0.032	0.06%
	150	0.182	3.64%	0.179	0.32%	0.030	0.06%
	75	0.150	3.00%	0.152	0.27%	0.029	0.05%
High Emissions Case	250	0.387	7.74%	0.354	0.64%	0.039	0.07%
	150	0.283	5.66%	0.264	0.48%	0.034	0.06%
	75	0.199	3.98%	0.197	0.36%	0.031	0.06%
Mitigation Runs	20 [1]	0.326	6.51%	0.303	0.55%	0.036	0.07%
	40 [1]	0.267	5.33%	0.251	0.45%	0.034	0.06%
	60 [1]	0.208	4.16%	0.199	0.36%	0.031	0.06%
	80 [1]	0.149	2.98%	0.147	0.27%	0.028	0.05%

[1] JIDP % Emissions Reductions

Table C.10.17 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources Using FLAG Background Data

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	2.96	22	9	0.53	2	0	0.51	2	0	0.43	0	0
	150	2.23	13	5	0.37	0	0	0.37	0	0	0.31	0	0
	75	1.59	9	2	0.25	0	0	0.28	0	0	0.22	0	0
High Emissions Case	250	5.92	67	23	1.34	6	2	1.21	17	2	1.06	10	1
	150	4.23	38	15	0.88	3	0	0.79	3	0	0.69	2	0
	75	2.61	17	8	0.50	0	0	0.47	0	0	0.41	0	0
Mitigation Runs	20 [1]	4.98	52	19	1.08	4	1	0.98	11	0	0.85	6	0
	40 [1]	3.95	37	14	0.82	3	0	0.74	2	0	0.65	1	0
	60 [1]	2.80	20	9	0.56	1	0	0.50	1	0	0.44	0	0
	80 [1]	1.50	9	2	0.28	0	0	0.25	0	0	0.22	0	0

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	0.31	0	0	0.13	0	0	0.15	0	0	0.23	0	0
	150	0.22	0	0	0.10	0	0	0.11	0	0	0.17	0	0
	75	0.15	0	0	0.06	0	0	0.07	0	0	0.11	0	0
High Emissions Case	250	0.65	1	0	0.27	0	0	0.30	0	0	0.47	0	0
	150	0.44	0	0	0.18	0	0	0.20	0	0	0.31	0	0
	75	0.26	0	0	0.10	0	0	0.12	0	0	0.18	0	0
Mitigation Runs	20 [1]	0.53	1	0	0.22	0	0	0.24	0	0	0.38	0	0
	40 [1]	0.40	0	0	0.17	0	0	0.18	0	0	0.28	0	0
	60 [1]	0.27	0	0	0.11	0	0	0.12	0	0	0.19	0	0
	80 [1]	0.13	0	0	0.06	0	0	0.06	0	0	0.10	0	0

Note: Δdv = change in deciview.

[1] JIDP % Emissions Reductions

Table C.10.18 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project Sources Using IMPROVE Background Data

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	3.26	26	9	0.61	3	0	0.59	2	0	0.50	0	0
	150	2.46	18	6	0.43	0	0	0.43	0	0	0.35	0	0
	75	1.77	10	2	0.29	0	0	0.31	0	0	0.25	0	0
High Emissions Case	250	6.44	70	31	1.54	9	3	1.36	19	2	1.22	15	1
	150	4.64	46	17	1.01	4	1	0.90	5	0	0.80	3	0
	75	2.97	21	7	0.58	1	0	0.55	2	0	0.47	0	0
Mitigation Runs	20 [1]	5.45	52	20	1.25	4	1	1.11	12	2	0.98	8	0
	40 [1]	4.34	39	15	0.95	3	0	0.84	4	0	0.75	1	0
	60 [1]	3.09	20	9	0.64	2	0	0.57	2	0	0.50	1	0
	80 [1]	1.66	9	3	0.33	0	0	0.29	0	0	0.26	0	0

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	0.31	0	0	0.14	0	0	0.15	0	0	0.23	0	0
	150	0.23	0	0	0.10	0	0	0.11	0	0	0.17	0	0
	75	0.15	0	0	0.06	0	0	0.07	0	0	0.11	0	0
High Emissions Case	250	0.66	1	0	0.28	0	0	0.31	0	0	0.48	0	0
	150	0.45	0	0	0.18	0	0	0.20	0	0	0.32	0	0
	75	0.26	0	0	0.10	0	0	0.12	0	0	0.18	0	0
Mitigation Runs	20 [1]	0.53	1	0	0.22	0	0	0.25	0	0	0.38	0	0
	40 [1]	0.40	0	0	0.17	0	0	0.19	0	0	0.29	0	0
	60 [1]	0.27	0	0	0.11	0	0	0.12	0	0	0.19	0	0
	80 [1]	0.14	0	0	0.06	0	0	0.06	0	0	0.10	0	0

Note: Δdv = change in deciview.

[1] JIDP % Emissions Reductions

Table C.10.19 - Summary of Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Using FLAG Background Data

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	3.43	37	11	0.74	5	0	0.83	8	0	1.07	6	1
	150	2.74	27	8	0.60	3	0	0.73	6	0	0.97	5	0
	75	2.30	20	4	0.52	1	0	0.66	3	0	0.89	4	0
High Emissions Case	250	6.28	80	32	1.37	10	3	1.45	28	4	1.39	22	3
	150	4.66	62	18	0.93	7	0	1.06	17	1	1.15	15	2
	75	3.11	32	11	0.66	4	0	0.78	7	0	0.95	5	0
Mitigation Runs	20 [2]	5.38	71	25	1.12	9	2	1.23	22	3	1.26	18	2
	40 [2]	4.39	52	16	0.86	7	0	1.01	15	1	1.13	11	1
	60 [2]	3.29	34	11	0.66	4	0	0.79	7	0	1.00	4	0
	80 [2]	2.29	19	5	0.49	0	0	0.64	2	0	0.86	4	0

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	0.48	0	0	0.23	0	0	0.24	0	0	0.33	0	0
	150	0.40	0	0	0.20	0	0	0.20	0	0	0.28	0	0
	75	0.36	0	0	0.18	0	0	0.18	0	0	0.24	0	0
High Emissions Case	250	0.82	3	0	0.34	0	0	0.39	0	0	0.57	1	0
	150	0.61	1	0	0.27	0	0	0.29	0	0	0.41	0	0
	75	0.43	0	0	0.21	0	0	0.21	0	0	0.29	0	0
Mitigation Runs	20 [2]	0.70	1	0	0.30	0	0	0.33	0	0	0.48	0	0
	40 [2]	0.57	1	0	0.26	0	0	0.27	0	0	0.38	0	0
	60 [2]	0.44	0	0	0.21	0	0	0.21	0	0	0.30	0	0
	80 [2]	0.34	0	0	0.17	0	0	0.17	0	0	0.23	0	0

[1] Δdv = change in deciview.
[2] JIDP % Emissions Reductions

Table C.10.20 - Summary of Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Direct Project and Regional Sources Using IMPROVE Background Data

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	3.78	44	15	0.85	7	0	0.97	13	0	1.19	11	2
	150	3.03	34	9	0.69	4	0	0.85	8	0	1.08	7	2
	75	2.63	24	6	0.60	2	0	0.76	6	0	0.99	6	0
High Emissions Case	250	6.82	90	39	1.58	13	3	1.67	31	6	1.54	22	5
	150	5.09	63	24	1.07	9	2	1.22	21	3	1.28	17	2
	75	3.42	40	13	0.76	6	0	0.90	11	0	1.06	10	2
Mitigation Runs	20 [2]	5.87	73	29	1.29	12	3	1.42	26	4	1.40	20	3
	40 [2]	4.8	58	21	1.00	9	0	1.16	21	3	1.26	15	2
	60 [2]	3.62	41	15	0.76	6	0	0.92	11	0	1.11	10	2
	80 [2]	2.62	21	6	0.57	2	0	0.75	4	0	0.96	4	0

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative	WDR	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Low Emissions Case	250	0.49	0	0	0.23	0	0	0.25	0	0	0.33	0	0
	150	0.40	0	0	0.20	0	0	0.20	0	0	0.28	0	0
	75	0.36	0	0	0.18	0	0	0.18	0	0	0.24	0	0
High Emissions Case	250	0.83	3	0	0.34	0	0	0.40	0	0	0.58	1	0
	150	0.62	1	0	0.27	0	0	0.30	0	0	0.42	0	0
	75	0.44	0	0	0.21	0	0	0.21	0	0	0.30	0	0
Mitigation Runs	20 [2]	0.70	2	0	0.30	0	0	0.34	0	0	0.48	0	0
	40 [2]	0.58	1	0	0.26	0	0	0.28	0	0	0.39	0	0
	60 [2]	0.45	0	0	0.22	0	0	0.22	0	0	0.30	0	0
	80 [2]	0.35	0	0	0.17	0	0	0.18	0	0	0.23	0	0

[1] Δdv = change in deciview.

[2] JIDP % Emissions Reductions

Table C.10.21 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Direct Project Sources Using FLAG Background Data

		Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	1.64	2	2.64	17	2.01	7	1.40	1	2.66	1
	150	1.21	1	1.97	8	1.46	3	1.01	1	1.95	1
	75	0.85	0	1.43	2	0.98	0	0.66	0	1.28	1
High Emissions Case	250	3.45	21	5.28	56	4.06	33	3.37	7	6.00	11
	150	2.36	11	3.76	29	2.84	21	2.34	1	4.32	3
	75	1.35	2	2.49	16	1.75	7	1.35	1	2.58	1
Mitigation Runs	20[2]	2.85	16	4.42	38	3.37	25	2.78	1	5.06	6
	40[2]	2.21	8	3.48	28	2.63	17	2.15	1	4.01	1
	60[2]	1.53	2	2.45	17	1.83	8	1.48	1	2.85	1
	80[2]	0.79	0	1.30	1	0.95	0	0.77	0	1.52	1

		Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	2.12	1	1.93	5	1.10	2	0.65	0	3.60	2
	150	1.54	1	1.36	3	0.78	0	0.48	0	2.69	1
	75	1.01	1	0.92	0	0.51	0	0.32	0	1.83	1
High Emissions Case	250	4.89	16	4.33	10	2.27	6	1.43	4	7.66	18
	150	3.46	3	2.96	8	1.52	2	0.98	0	5.67	7
	75	2.04	1	1.87	4	0.88	0	0.57	0	3.52	1
Mitigation Runs	20[2]	4.09	9	3.60	8	1.85	5	1.16	2	6.53	14
	40[2]	3.21	2	2.82	7	1.42	2	0.88	0	5.25	5
	60[2]	2.25	1	1.96	5	0.97	0	0.60	0	3.79	2
	80[2]	1.19	1	1.03	1	0.50	0	0.30	0	2.07	1

[1] Δdv = change in deciview.

[2] JIDP % Emissions Reductions

Table C.10.22 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Direct Project Sources Using IMPROVE Background Data

		Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	1.89	4	2.92	21	2.30	10	1.60	1	3.03	1
	150	1.40	2	2.18	13	1.67	4	1.16	1	2.23	1
	75	0.98	0	1.58	3	1.12	2	0.76	0	1.47	1
High Emissions Case	250	3.93	18	5.76	62	4.58	30	3.82	9	6.70	14
	150	2.71	13	4.13	33	3.23	21	2.67	1	4.87	5
	75	1.56	2	2.75	20	2.01	7	1.56	1	2.94	1
Mitigation Runs	20[2]	3.25	16	4.84	45	3.82	26	3.16	2	5.68	9
	40[2]	2.53	12	3.83	27	2.99	21	2.46	1	4.53	3
	60[2]	1.76	2	2.71	19	2.09	9	1.70	1	3.24	1
	80[2]	0.92	0	1.45	4	1.10	2	0.89	0	1.75	1

		Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	2.42	1	2.21	5	1.27	2	0.75	0	4.07	3
	150	1.77	1	1.57	5	0.90	0	0.55	0	3.07	2
	75	1.17	1	1.06	2	0.59	0	0.37	0	2.09	1
High Emissions Case	250	5.50	15	4.88	13	2.59	5	1.64	5	8.48	21
	150	3.92	5	3.37	8	1.74	4	1.13	2	6.34	8
	75	2.33	1	2.14	5	1.02	1	0.66	0	3.98	2
Mitigation Runs	20[2]	4.61	13	4.08	10	2.12	4	1.34	3	7.27	16
	40[2]	3.64	4	3.20	8	1.63	3	1.02	1	5.89	6
	60[2]	2.57	1	2.25	5	1.12	2	0.69	0	4.28	3
	80[2]	1.37	1	1.19	1	0.57	0	0.35	0	2.37	1

[1] Δdv = change in deciview.

[2] JIDP % Emissions Reductions

Table C.10.23 - Summary of Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Direct Project and Regional Sources Using FLAG Background Data

		Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	2.25	16	3.16	31	3.17	18	1.46	1	2.75	6
	150	2.09	13	2.51	17	2.88	11	1.08	1	2.04	2
	75	2.04	9	2.00	10	2.78	7	0.73	0	1.38	1
High Emissions Case	250	3.81	34	5.67	64	4.97	39	3.42	12	6.07	16
	150	2.76	24	4.22	43	3.87	28	2.40	2	4.40	12
	75	2.11	13	3.01	25	2.87	14	1.42	1	2.67	2
Mitigation Runs	20[2]	3.23	28	4.85	53	4.36	34	2.83	6	5.13	13
	40[2]	2.61	21	3.96	35	3.71	25	2.21	1	4.09	7
	60[2]	2.20	14	2.97	27	3.02	16	1.55	1	2.93	6
	80[2]	1.99	8	1.88	9	2.72	6	0.84	0	1.62	1

		Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	2.20	6	2.42	11	2.50	9	0.99	0	3.70	8
	150	1.63	1	1.94	10	2.24	6	0.96	0	2.80	8
	75	1.11	1	1.71	10	2.02	6	0.94	0	1.94	5
High Emissions Case	250	4.95	21	4.49	19	3.51	15	1.68	9	7.73	23
	150	3.54	14	3.14	12	2.86	11	1.26	5	5.75	16
	75	2.13	3	2.09	10	2.33	6	0.97	0	3.62	8
Mitigation Runs	20[2]	4.15	16	3.77	15	3.14	14	1.42	6	6.60	19
	40[2]	3.29	14	2.99	12	2.77	11	1.16	4	5.34	14
	60[2]	2.33	3	2.16	10	2.40	7	0.97	0	3.89	8
	80[2]	1.28	1	1.63	8	2.02	6	0.93	0	2.19	5

[1] Δdv = change in deciview.

[2] JIDP % Emissions Reductions

Table C.10.24 - Summary of Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Direct Project and Regional Sources Using IMPROVE Background Data

		Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	2.57	19	3.48	32	3.60	20	1.68	1	3.13	7
	150	2.39	15	2.78	23	3.27	11	1.24	1	2.34	5
	75	2.33	13	2.22	13	3.16	9	0.84	0	1.58	3
High Emissions Case	250	4.32	36	6.18	74	5.58	40	3.88	15	6.77	17
	150	3.16	25	4.63	50	4.38	26	2.73	5	4.96	13
	75	2.41	18	3.32	29	3.27	15	1.63	1	3.04	7
Mitigation Runs	20[2]	3.68	30	5.30	59	4.91	32	3.22	12	5.75	16
	40[2]	2.99	24	4.37	40	4.20	22	2.53	5	4.62	12
	60[2]	2.51	17	3.28	30	3.43	17	1.78	1	3.33	7
	80[2]	2.28	13	2.13	12	3.09	9	0.97	0	1.86	2

		Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	WDR	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Low Emissions Case	250	2.52	11	2.68	11	2.85	11	1.11	4	4.18	8
	150	1.87	6	2.22	10	2.56	9	1.07	1	3.19	8
	75	1.27	1	1.96	10	2.31	6	1.04	1	2.23	7
High Emissions Case	250	5.56	23	5.05	21	3.97	16	1.93	10	8.56	27
	150	4.00	16	3.56	15	3.25	14	1.45	6	6.43	18
	75	2.43	7	2.39	11	2.66	9	1.08	1	4.09	8
Mitigation Runs	20[2]	4.69	19	4.26	19	3.57	14	1.64	9	7.35	21
	40[2]	3.73	16	3.40	14	3.15	12	1.35	6	5.98	15
	60[2]	2.66	9	2.46	11	2.74	9	1.08	2	4.39	9
	80[2]	1.47	2	1.87	10	2.30	6	1.03	1	2.50	6

[1] Δdv = change in deciview.

[2] JIDP % Emissions Reductions

APPENDIX D

EARLY PROJECT DEVELOPMENT STAGE EMISSIONS INVENTORY

The following is a list of the tables included within this appendix:

Table D.1.1
Jonah Infill Drilling Project
Early Project Development Stage Modeling Emissions
(Tons Per Year)

	Early Project Develepment Stage Cases	
	Direct Project	Non-Project Regional Emissions
Production Emissions		
Wells[1]		
NO_x	31.7	–
SO_2	0.0	–
PM_{10}	6.1	–
$PM_{2.5}$	6.1	–
Traffic[2]		
NO_x	5.9	
SO_2	0.2	–
PM_{10}	160.1	–
$PM_{2.5}$	24.3	–
Compression[3]		
NO_x	503.4	189.0
SO_2	0.0	0.0
PM_{10}	0.0	0.0
$PM_{2.5}$	0.0	0.0
Construction Emissions		
Well Drilling[4]		
NO_x	1,728.9	6,105.0
SO_2	116.1	365.0
PM_{10}	415.7	509.6
$PM_{2.5}$	415.7	509.6
Traffic[5]		
NO_x	9.6	–
SO_2	0.3	–
PM_{10}	160.4	–
$PM_{2.5}$	24.6	–
Flaring[6]		
NO_x	45.2	332.0
SO_2	0.0	0.0
PM_{10}	0.0	21.9
$PM_{2.5}$	0.0	21.9
Other Inventory Emissions		
MSI[7]		
NO_x	–	4,059.7
SO_2	–	(48.0)
PM_{10}	–	700.8
$PM_{2.5}$	–	605.3
RFFA[8]		
NO_x	–	810.7
SO_2	–	(1,347.1)
PM_{10}	–	(1,196.6)
$PM_{2.5}$	–	(500.4)
RFD[9]		
NO_x	–	3,166.5
SO_2	–	56.1
PM_{10}	–	84.0
$PM_{2.5}$	–	81.9
Total		
NO_x	2,324.7	14,662.8
SO_2	116.5	(973.9)
PM_{10}	742.3	119.7
$PM_{2.5}$	470.7	718.2

[1] Includes emissions from indirect heater, separator heater, and dehyrator heater (scaled from DEIS).
[2] Includes emissions from all traffic associated with full field production(scaled from DEIS).
[3] Includes compression estimates from DEIS and expanded compression estimates post DEIS.
[4] Includes emissions from drilling rigs operating continuously during the year.
80% Tier 0/20% Tier 1 - Emissions breakdowns can be found in the following tables.
[5] Includes emissions from all traffic for well construction from DEIS scaled by a factor of 14.25/20 to account for the difference between 2006 and 2002 construction estimates.
[6] Includes emissions from flares operating continuously throughout the year.
Emissions breakdowns can be found in the following tables.
[7] Includes sources from DEIS as well as post DEIS up to 3-31-04.
[8] Includes sources from DEIS as well as post DEIS up to 3-31-04.
[9] Includes sources from DEIS.

Table D.1.2
Jonah Field - Drilling Emissions - AP-42 - Straight Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Jonah Infill Drilling Project**
Scenario: **Straight Drilling**
Activity: **Drilling**
Emissions: **Diesel Combustion Emissions from Drilling Engines - EPA AP-42**
Date: **6/30/2005**

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,100	0.42	19	24	2,702.63	5.93	25.96
NOx	0.031	2,100	0.42	19	24	12,542.17	27.50	120.47
SO_2	0.00205	2,100	0.42	19	24	829.40	1.82	7.97
VOC	0.0025	2,100	0.42	19	24	1,011.47	2.22	9.72
PM_{10}[4]	0.0022	2,100	0.42	19	24	890.09	1.95	8.55

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.3

Jonah Field - Drilling Emissions Tier 1 - Straight Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,100	0.42	19	24	7,581.69	16.63	72.82
NOx	0.015	2,100	0.42	19	24	6,154.55	13.50	59.12
SO_2[4]	0.00035	2,100	0.42	19	24	139.77	0.31	1.34
VOC	0.0022	2,100	0.42	19	24	891.96	1.96	8.57
PM_{10}[5]	0.00088	2,100	0.42	19	24	356.79	0.78	3.43

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.4

Jonah Field - Drilling Emissions Tier 2 - Straight Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 2
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0057	2,100	0.42	19	24	2,319.11	5.09	22.28
NOx	0.0090	2,100	0.42	19	24	3,657.05	8.02	35.13
SO_2[4]	0.00035	2,100	0.42	19	24	139.77	0.31	1.34
VOC	0.0004	2,100	0.42	19	24	148.87	0.33	1.43
PM_{10}[5]	0.00033	2,100	0.42	19	24	133.79	0.29	1.29

[1] Emission factor for Tier 2 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
NO_x and HC Emission Factors estimated based on Tables 3 and 5 of "Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling–Compression-Ignition," NR-009c, EPA, April 2004.

[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.

[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.5

Jonah Field - Drilling Emissions AP-42 - Directional Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Directional Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions Per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,600	0.42	23	24	4,050.56	7.34	32.14
NOx	0.031	2,600	0.42	23	24	18,797.53	34.05	149.15
SO_2	0.00205	2,600	0.42	23	24	1,243.06	2.25	9.86
VOC	0.0025	2,600	0.42	23	24	1,515.93	2.75	12.03
PM_{10}[4]	0.0022	2,600	0.42	23	24	1,334.02	2.42	10.59

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on three engines, two at 800hp and one at 500hp.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.6

Jonah Field - Drilling Emissions Tier 1 - Directional Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Directional Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,600	0.42	23	24	11,363.04	20.59	90.16
NOx	0.015	2,600	0.42	23	24	9,224.12	16.71	73.19
SO_2[4]	0.00035	2,600	0.42	23	24	209.48	0.38	1.66
VOC	0.0022	2,600	0.42	23	24	1,336.83	2.42	10.61
PM_{10}[5]	0.00088	2,600	0.42	23	24	534.73	0.97	4.24

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.

[2] Drilling engine horsepower based on four engines, two at 800hp and two at 500hp.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.

[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.7

Jonah Field - Drilling Emissions Tier 2 - Directional Drilling

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Directional Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 2
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0057	2,600	0.42	23	24	3,475.75	6.30	27.58
NOx	0.0090	2,600	0.42	23	24	5,481.00	9.93	43.49
SO_2[4]	0.00035	2,600	0.42	23	24	209.48	0.38	1.66
VOC	0.0004	2,600	0.42	23	24	223.12	0.40	1.77
PM_{10}[5]	0.00033	2,600	0.42	23	24	200.52	0.36	1.59

[1] Emission factor for Tier 2 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
NO_x and HC Emission Factors estimated based on Tables 3 and 5 of "Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling--Compression-Ignition," NR-009c, EPA, April 2004.

[2] Drilling engine horsepower based on four engines, two at 800hp and two at 500hp.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.

[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.8
Jonah Field - Completion Flaring Emissions

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: All Scenarios
Activity: Completion/Testing Flaring
Emissions: Gas Flaring without High Pressure Flowback Separator Units
Date: 6/30/2005

Flaring Specifications:

Total Volume of Gas Emitted	35000	mcf
Total Volume of Condensate Emitted	250	bbls
Average Heat Content	1092.9	BTU/scf
Flaring/Flowback Activity Duration	120	hrs/well
Flaring Duration	80	hr/well
Pre-ignition Flow-back Duration	40	hr/well
Pre-ignition Flow-back Time Involving a Gas Stream	10	%
Actual Hours Gas is Vented	4	hrs
Total Hours in which Gas is Vented or Flared[1]	84	hrs
Average Flowrate of Gas[2]	416.67	mcf/hr
Total Volume of Gas Vented[3]	1,666.67	mcf
Total Volume of Flared Gas[4]	33,333.33	mcf
Average Flowrate of Condensate	2.98	bbls/hr
Pre-flare Volume of Condensate	11.90	bbls
Volume of Condensate Flared	238.10	bbls

Activity	Volume	Volume Units	Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source[6]	Total Emissions (tons)	Duration (hours)	Hourly Emissions (lb/hr)
Venting - Natural Gas[5]	1,666.67	mcf	VOC	4.70	lb / 1000 scf	Gas Constituent Analysis	3.91	4	1,956.87
			HAP (total)	0.17	lb / 1000 scf	Gas Constituent Analysis	0.14	4	71.37
			n-Hexane	0.08	lb / 1000 scf	Gas Constituent Analysis	0.070	4	35.13
			Benzene	0.026	lb / 1000 scf	Gas Constituent Analysis	0.022	4	10.75
			Toluene	0.041	lb / 1000 scf	Gas Constituent Analysis	0.034	4	17.02
			Ethylbenzene	0.0019	lb / 1000 scf	Gas Constituent Analysis	0.0016	4	0.80
			Xylenes	0.018	lb / 1000 scf	Gas Constituent Analysis	0.015	4	7.67
Flaring - Natural Gas	33,333.33	mcf	NOx	0.068	lb / 10^6 BTU	AP-42 Section 13.5	1.24	80	30.97
			CO	0.37	lb / 10^6 BTU	AP-42 Section 13.5	6.74	80	168.49
			VOC	2.35	lb / 1000 scf	Gas Constituent Analysis	39.14	80	978.43
			HAP (total)	0.09	lb / 1000 scf	Gas Constituent Analysis	1.43	80	35.69
			n-Hexane	0.042	lb / 1000 scf	Gas Constituent Analysis	0.70	80	17.57
			Benzene	0.013	lb / 1000 scf	Gas Constituent Analysis	0.22	80	5.38
			Toluene	0.020	lb / 1000 scf	Gas Constituent Analysis	0.34	80	8.51
			Ethylbenzene	0.001	lb / 1000 scf	Gas Constituent Analysis	0.016	80	0.40
			Xylenes	0.009	lb / 1000 scf	Gas Constituent Analysis	0.15	80	3.83
Flaring - Condensate	238.10	bbls	VOC	121.98	lb/bbl	ndensate Constituent Analy	14.52	80	363.03
			HAP (total)	25.85	lb/bbl	ndensate Constituent Analy	3.08	80	76.93
			n-hexane	4.59	lb/bbl	ndensate Constituent Analy	0.55	80	13.67
			Benzene	1.42	lb/bbl	ndensate Constituent Analy	0.17	80	4.22
			Toluene	6.11	lb/bbl	ndensate Constituent Analy	0.73	80	18.19
			Ethylbenzene	0.74	lb/bbl	ndensate Constituent Analy	0.09	80	2.19
			Xylenes	12.99	lb/bbl	ndensate Constituent Analy	1.55	80	38.66

[1] Calculated as 10% * 40 hrs of pre-ignition flowback + 80 hrs of flaring.
[2] Calculated as 3500 mcf / 84 hrs.
[3] Calculated as 416.67 mcf/hr * 4 hrs.
[4] Calculated as 416.67 mcf/hr * 80 hrs.
[5] An estimated 11.9 bbl of condensate are captured prior to flare ignition. Flashing from this condensate is not analyzed.
[6] For all emission factors that used the constituent analysis, a 50% destruction rate was assumed.

Table D.1.9
Jonah Field - Summary - 2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Estimated 2002 Drilling and Completion Emissions
2,100 hp, 100 % Tier 0
100% Straight Drilling
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Rig Emissions (Tier 0)	Tier 0 Fraction	Average Drilling Emissions per Rig[1]	Total Emissions from all Rigs[1]	Flaring Emissions[2]
				(lb/hr)		(lb/hr)	(lb/hr)	(lb/hr)
January	NO_x	6	3	27.50	1.0	**27.50**	**165.03**	**92.90**
	SO_2			1.82	1.0	**1.82**	**10.91**	-
	PM_{10}			1.95	1.0	**1.95**	**11.71**	-
February	NO_x	6	3	27.50	1.0	**27.50**	**165.03**	**92.90**
	SO_2			1.82	1.0	**1.82**	**10.91**	-
	PM_{10}			1.95	1.0	**1.95**	**11.71**	-
March	NO_x	6	3	27.50	1.0	**27.50**	**165.03**	**92.90**
	SO_2			1.82	1.0	**1.82**	**10.91**	-
	PM_{10}			1.95	1.0	**1.95**	**11.71**	-
April	NO_x	8	4	27.50	1.0	**27.50**	**220.04**	**123.86**
	SO_2			1.82	1.0	**1.82**	**14.55**	-
	PM_{10}			1.95	1.0	**1.95**	**15.62**	-
May	NO_x	5	2	27.50	1.0	**27.50**	**137.52**	**61.93**
	SO_2			1.82	1.0	**1.82**	**9.09**	-
	PM_{10}			1.95	1.0	**1.95**	**9.76**	-
June	NO_x	7	3	27.50	1.0	**27.50**	**192.53**	**92.90**
	SO_2			1.82	1.0	**1.82**	**12.73**	-
	PM_{10}			1.95	1.0	**1.95**	**13.66**	-
July	NO_x	4	2	27.50	1.0	**27.50**	**110.02**	**61.93**
	SO_2			1.82	1.0	**1.82**	**7.28**	-
	PM_{10}			1.95	1.0	**1.95**	**7.81**	-
August	NO_x	5	2	27.50	1.0	**27.50**	**137.52**	**61.93**
	SO_2			1.82	1.0	**1.82**	**9.09**	-
	PM_{10}			1.95	1.0	**1.95**	**9.76**	-
September	NO_x	8	4	27.50	1.0	**27.50**	**220.04**	**123.86**
	SO_2			1.82	1.0	**1.82**	**14.55**	-
	PM_{10}			1.95	1.0	**1.95**	**15.62**	-
October	NO_x	5	2	27.50	1.0	**27.50**	**137.52**	**61.93**
	SO_2			1.82	1.0	**1.82**	**9.09**	-
	PM_{10}			1.95	1.0	**1.95**	**9.76**	-
November	NO_x	4	2	27.50	1.0	**27.50**	**110.02**	**61.93**
	SO_2			1.82	1.0	**1.82**	**7.28**	-
	PM_{10}			1.95	1.0	**1.95**	**7.81**	-
December	NO_x	5	2	27.50	1.0	**27.50**	**137.52**	**61.93**
	SO_2			1.82	1.0	**1.82**	**9.09**	-
	PM_{10}			1.95	1.0	**1.95**	**9.76**	-

[1] Emissions are calculated based on 2,100 hp 100 % Tier 0 engines.
[2] Flaring emissions taken from the "Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement" November, 2004.

Table D.1.10
Jonah Field - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: Estimated 2006 Drilling and Completion Emissions
50% Straight, 50% Directional
80% Tier 0, 20% Tier 1
Date: 6/30/2005

Month[1]	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Tier 0 Drilling Emissions - Straight	Tier 1 Drilling Emissions - Straight	Tier 0 Drilling Emissions - Directional	Tier 1 Drilling Emissions - Directional	Tier 0 Fraction	Tier 1 Fraction	Average Drilling Emissions per Rig[2]	Total Emissions from all Rigs[2]	Flaring Emissions[3]
				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)			(lb/hr)	(lb/hr)	(lb/hr)
All	NO_x	20	3	27.50	13.50	34.05	16.71	0.8	0.2	**27.64**	**552.88**	**92.90**
	SO_2			1.82	1.82	2.25	0.38	0.8	0.2	**1.85**	**36.96**	**-**
	PM_{10}			1.95	1.95	10.59	0.97	0.8	0.2	**5.31**	**106.14**	**-**

[1] All months have equal numbers of 20 drilling rigs and 3 flares.
[2] Emissions based on 50% directional drilling and 50% straight drilling, as well as 80% Tier 0 engines and 20% Tier 1 compliant engines.
[3] Flaring emissions taken from the "Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement", November, 2004.

Table D.1.11
Jonah Field - Summary - 2006-2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill
Scenario: 2006-2002 Emissions and Modeling Scalars
Date: 6/30/2005

Month	Pollutant	Total Emissions from all Rigs (2006) (lb/hr)	Flaring Emissions (2006) (lb/hr)	Total Emissions from all Rigs (2002) (lb/hr)	Flaring Emissions (2002) (lb/hr)	Emissions Difference - Rigs - (2006 - 2002) (lb/hr)	Emissions Difference - Flares - (2006 - 2002) (lb/hr)	Rig Scalar	Flare Scalar
January	NO_x	552.88	92.90	165.03	92.90	387.85	0.00	0.8758	0.00
	SO_2	36.96	-	10.91	-	26.05	-	0.8775	-
	PM_{10}	106.14	-	11.71	-	94.43	-	0.9603	-
February	NO_x	552.88	92.90	165.03	92.90	387.85	0.00	0.8758	0.00
	SO_2	36.96	-	10.91	-	26.05	-	0.8775	-
	PM_{10}	106.14	-	11.71	-	94.43	-	0.9603	-
March	NO_x	552.88	92.90	165.03	92.90	387.85	0.00	0.8758	0.00
	SO_2	36.96	-	10.91	-	26.05	-	0.8775	-
	PM_{10}	106.14	-	11.71	-	94.43	-	0.9603	-
April	NO_x	552.88	92.90	220.04	123.86	332.84	-30.97	0.7516	-1.00
	SO_2	36.96	-	14.55	-	22.41	-	0.7549	-
	PM_{10}	106.14	-	15.62	-	90.52	-	0.9206	-
May	NO_x	552.88	92.90	137.52	61.93	415.36	30.97	0.9379	1.00
	SO_2	36.96	-	9.09	-	27.87	-	0.9387	-
	PM_{10}	106.14	-	9.76	-	96.38	-	0.9801	-
June	NO_x	552.88	92.90	192.53	92.90	360.35	0.00	0.8137	0.00
	SO_2	36.96	-	12.73	-	24.23	-	0.8162	-
	PM_{10}	106.14	-	13.66	-	92.47	-	0.9404	-
July	NO_x	552.88	92.90	110.02	61.93	442.86	30.97	1.0000	1.00
	SO_2	36.96	-	7.28	-	29.69	-	1.0000	-
	PM_{10}	106.14	-	7.81	-	98.33	-	1.0000	-
August	NO_x	552.88	92.90	137.52	61.93	415.36	30.97	0.9379	1.00
	SO_2	36.96	-	9.09	-	27.87	-	0.9387	-
	PM_{10}	106.14	-	9.76	-	96.38	-	0.9801	-
September	NO_x	552.88	92.90	220.04	123.86	332.84	-30.97	0.7516	-1.00
	SO_2	36.96	-	14.55	-	22.41	-	0.7549	-
	PM_{10}	106.14	-	15.62	-	90.52	-	0.9206	-
October	NO_x	552.88	92.90	137.52	61.93	415.36	30.97	0.9379	1.00
	SO_2	36.96	-	9.09	-	27.87	-	0.9387	-
	PM_{10}	106.14	-	9.76	-	96.38	-	0.9801	-
November	NO_x	552.88	92.90	110.02	61.93	**442.86**	30.97	1.0000	1.00
	SO_2	36.96	-	7.28	-	**29.69**	-	1.0000	-
	PM_{10}	106.14	-	7.81	-	**98.33**	-	1.0000	-
December	NO_x	552.88	92.90	137.52	61.93	415.36	**30.97**	0.9379	1.00
	SO_2	36.96	-	9.09	-	27.87	-	0.9387	-
	PM_{10}	106.14	-	9.76	-	96.38	-	0.9801	-

Numbers that scalars are based on. These scalars are used in model input files for modeling monthly emissions.

Table D.1.12
Jonah Field - Expanded Field Operators - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project - Expanded Field Operators
Scenario: Estimated 2006 Drilling and Completion Emissions
2600 hp Rigs
80% Tier 0, 20% Tier 1
Date: 6/30/2005

Month[1]	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Tier 0 Drilling Emissions (lb/hr)	Tier 1 Drilling Emissions (lb/hr)	Tier 0 Fraction	Tier 1 Fraction	Average Drilling Emissions per Rig[2] (lb/hr)	Total Emissions from all Rigs[2] (lb/hr)	Flaring Emissions[3] (lb/hr)
All	NO_x	3	1	34.05	16.71	0.8	0.2	**30.58**	**91.75**	**30.97**
	SO_2			2.25	0.38	0.8	0.2	**1.88**	**5.63**	**-**
	PM_{10}			10.59	0.97	0.8	0.2	**8.66**	**25.99**	**-**

[1] All months have equal numbers of 3 drilling rigs.
[2] Emissions based on 2600 hp Rigs with 80% Tier 0 engines and 20% Tier 1 compliant engines.
[3] Flaring emissions taken from the "Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement", November, 2004.

Table D.1.13
Pinedale Anticline - Drilling Emissions - Manufacturer's/AP-42 - Rig # 232

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Rig # 232
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Manufacturer's and AP-42
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
	CO	0.00668	912	0.56	60	24	4,912.72	3.41	14.94
	NOx	0.0101	912	N/A	60	24	13,299.98	9.24	40.45
Cat. 398 TA	SO_2	0.00205	912	0.56	60	24	1,507.65	1.05	4.59
	VOC	0.0025	912	0.56	60	24	1,838.59	1.28	5.59
	PM_{10}[4]	0.0022	912	0.56	60	24	1,617.96	1.12	4.92
	CO	0.00668	912	0.56	60	24	4,912.72	3.41	14.94
	NOx	0.0101	912	N/A	60	24	13,299.98	9.24	40.45
Cat. 398 TA	SO_2	0.00205	912	0.56	60	24	1,507.65	1.05	4.59
	VOC	0.0025	912	0.56	60	24	1,838.59	1.28	5.59
	PM_{10}[4]	0.0022	912	0.56	60	24	1,617.96	1.12	4.92
	CO	0.00668	912	0.56	60	24	4,912.72	3.41	14.94
	NOx	0.0101	912	N/A	60	24	13,299.98	9.24	40.45
Cat. 398 TA	SO_2	0.00205	912	0.56	60	24	1,507.65	1.05	4.59
	VOC	0.0025	912	0.56	60	24	1,838.59	1.28	5.59
	PM_{10}[4]	0.0022	912	0.56	60	24	1,617.96	1.12	4.92
	CO	0.00668	480	0.14	60	24	646.41	0.45	1.97
	NOx	0.0024	480	N/A	60	24	1,640.01	1.14	4.99
Cat. 3408 TA	SO_2	0.00205	480	0.14	60	24	198.37	0.14	0.60
	VOC	0.0025	480	0.14	60	24	241.92	0.17	0.74
	PM_{10}[4]	0.0022	480	0.14	60	24	212.89	0.15	0.65
	CO		**3,216**		**60**	**24**	**15,384.56**	**10.68**	**46.79**
	NOx		**3,216**		**60**	**24**	**41,539.95**	**28.85**	**126.35**
Rig Totals	**SO_2**		**3,216**		**60**	**24**	**4,721.31**	**3.28**	**14.36**
	VOC		**3,216**		**60**	**24**	**5,757.70**	**4.00**	**17.51**
	PM_{10}[4]		**3,216**		**60**	**24**	**5,066.77**	**3.52**	**15.41**

[1] NOx based on data provided by WDEQ/Questar, all other pollutants based on AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar. Load factor for NOx is accounted for in the emission factor as it is load-weighted.
[4] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.14
Pinedale Anticline - Drilling Emissions - Tier 1 - Rig # 232

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Rig # 232
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 398 TA	CO	0.0187	912	0.56	60	24	13,781.64	9.57	41.92
	NOx	0.015	912	0.56	60	24	11,187.45	7.77	34.03
	SO_2[4]	0.00035	912	0.56	60	24	254.07	0.18	0.77
	VOC	0.0022	912	0.56	60	24	1,621.37	1.13	4.93
	PM_{10}[5]	0.00088	912	0.56	60	24	648.55	0.45	1.97
Cat. 398 TA	CO	0.0187	912	0.56	60	24	13,781.64	9.57	41.92
	NOx	0.015	912	0.56	60	24	11,187.45	7.77	34.03
	SO_2[4]	0.00035	912	0.56	60	24	254.07	0.18	0.77
	VOC	0.0022	912	0.56	60	24	1,621.37	1.13	4.93
	PM_{10}[5]	0.00088	912	0.56	60	24	648.55	0.45	1.97
Cat. 398 TA	CO	0.0187	912	0.56	60	24	13,781.64	9.57	41.92
	NOx	0.015	912	0.56	60	24	11,187.45	7.77	34.03
	SO_2[4]	0.00035	912	0.56	60	24	254.07	0.18	0.77
	VOC	0.0022	912	0.56	60	24	1,621.37	1.13	4.93
	PM_{10}[5]	0.00088	912	0.56	60	24	648.55	0.45	1.97
Cat. 3408 TA	CO	0.0187	480	0.14	60	24	1,813.37	1.26	5.52
	NOx	0.015	480	0.14	60	24	1,472.03	1.02	4.48
	SO_2[4]	0.00035	480	0.14	60	24	33.43	0.02	0.10
	VOC	0.0022	480	0.14	60	24	213.34	0.15	0.65
	PM_{10}[5]	0.00088	480	0.14	60	24	85.34	0.06	0.26
Rig Totals	**CO**		**3,216**		**60**	**24**	**43,158.28**	**29.97**	**131.27**
	NOx		**3,216**		**60**	**24**	**35,034.37**	**24.33**	**106.56**
	SO_2[4]		**3,216**		**60**	**24**	**795.64**	**0.55**	**2.42**
	VOC		**3,216**		**60**	**24**	**5,077.45**	**3.53**	**15.44**
	PM_{10}[5]		**3,216**		**60**	**24**	**2,030.98**	**1.41**	**6.18**

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.15
Pinedale Anticline - Drilling Emissions - Manufacturer's/AP-42 - Rig # 235

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Rig # 235
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Manufacturer's and AP-42
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 398 TA	CO	0.00668	912	0.56	60	24	4,912.72	3.41	14.94
	NOx	0.0101	912	N/A	60	24	13,299.98	9.24	40.45
	SO_2	0.00205	912	0.56	60	24	1,507.65	1.05	4.59
	VOC	0.0025	912	0.56	60	24	1,838.59	1.28	5.59
	PM_{10}[4]	0.0022	912	0.56	60	24	1,617.96	1.12	4.92
Cat. 398 TA	CO	0.00668	912	0.56	60	24	4,912.72	3.41	14.94
	NOx	0.0101	912	N/A	60	24	13,299.98	9.24	40.45
	SO_2	0.00205	912	0.56	60	24	1,507.65	1.05	4.59
	VOC	0.0025	912	0.56	60	24	1,838.59	1.28	5.59
	PM_{10}[4]	0.0022	912	0.56	60	24	1,617.96	1.12	4.92
Cat. 398 TA	CO	0.00668	912	0.56	60	24	4,912.72	3.41	14.94
	NOx	0.0101	912	N/A	60	24	13,299.98	9.24	40.45
	SO_2	0.00205	912	0.56	60	24	1,507.65	1.05	4.59
	VOC	0.0025	912	0.56	60	24	1,838.59	1.28	5.59
	PM_{10}[4]	0.0022	912	0.56	60	24	1,617.96	1.12	4.92
Cat. 3412TA	CO	0.00668	725	0.14	60	24	976.35	0.68	2.97
	NOx	0.0030	725	N/A	60	24	3,140.04	2.18	9.55
	SO_2	0.00205	725	0.14	60	24	299.63	0.21	0.91
	VOC	0.0025	725	0.14	60	24	365.40	0.25	1.11
	PM_{10}[4]	0.0022	725	0.14	60	24	321.55	0.22	0.98
Rig Totals	**CO**		**3,461**		**60**	**24**	**15,714.50**	**10.91**	**47.80**
	NOx		**3,461**		**60**	**24**	**43,039.98**	**29.89**	**130.91**
	SO_2		**3,461**		**60**	**24**	**4,822.56**	**3.35**	**14.67**
	VOC		**3,461**		**60**	**24**	**5,881.18**	**4.08**	**17.89**
	PM_{10}[4]		**3,461**		**60**	**24**	**5,175.43**	**3.59**	**15.74**

[1] NOx based on data provided by WDEQ/Questar, all other pollutants based on AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar. Load factor for NOx is accounted for in the emission factor as it is load-weighted.
[4] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.16
Pinedale Anticline - Drilling Emissions - Tier 1 - Rig # 235

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Rig # 235
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 398 TA	CO	0.0187	912	0.56	60	24	13,781.64	9.57	41.92
	NOx	0.015	912	0.56	60	24	11,187.45	7.77	34.03
	SO_2[4]	0.00035	912	0.56	60	24	254.07	0.18	0.77
	VOC	0.0022	912	0.56	60	24	1,621.37	1.13	4.93
	PM_{10}[5]	0.00088	912	0.56	60	24	648.55	0.45	1.97
Cat. 398 TA	CO	0.0187	912	0.56	60	24	13,781.64	9.57	41.92
	NOx	0.015	912	0.56	60	24	11,187.45	7.77	34.03
	SO_2[4]	0.00035	912	0.56	60	24	254.07	0.18	0.77
	VOC	0.0022	912	0.56	60	24	1,621.37	1.13	4.93
	PM_{10}[5]	0.00088	912	0.56	60	24	648.55	0.45	1.97
Cat. 398 TA	CO	0.0187	912	0.56	60	24	13,781.64	9.57	41.92
	NOx	0.015	912	0.56	60	24	11,187.45	7.77	34.03
	SO_2[4]	0.00035	912	0.56	60	24	254.07	0.18	0.77
	VOC	0.0022	912	0.56	60	24	1,621.37	1.13	4.93
	PM_{10}[5]	0.00088	912	0.56	60	24	648.55	0.45	1.97
Cat. 3412 TA	CO	0.0187	725	0.14	60	24	2,738.95	1.90	8.33
	NOx	0.015	725	0.14	60	24	2,223.38	1.54	6.76
	SO_2[4]	0.00035	725	0.14	60	24	50.49	0.04	0.15
	VOC	0.0022	725	0.14	60	24	322.23	0.22	0.98
	PM_{10}[5]	0.00088	725	0.14	60	24	128.89	0.09	0.39
Rig Totals	**CO**		**3,461**		**60**	**24**	**44,083.86**	**30.61**	**134.09**
	NOx		**3,461**		**60**	**24**	**35,785.72**	**24.85**	**108.85**
	SO_2[4]		**3,461**		**60**	**24**	**812.71**	**0.56**	**2.47**
	VOC		**3,461**		**60**	**24**	**5,186.34**	**3.60**	**15.78**
	PM_{10}[5]		**3,461**		**60**	**24**	**2,074.53**	**1.44**	**6.31**

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.17

Pinedale Anticline - Drilling Emissions - Manufacturer's/AP-42 - Rig # 236

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Rig # 236
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Manufacturer's and AP-42
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 398 TA	CO	0.00668	975	0.52	60	24	4,918.20	3.42	14.96
	NOx	0.0085	975	N/A	60	24	11,900.00	8.26	36.20
	SO_2	0.00205	975	0.52	60	24	1,509.33	1.05	4.59
	VOC	0.0025	975	0.52	60	24	1,840.64	1.28	5.60
	PM_{10}[4]	0.0022	975	0.52	60	24	1,619.77	1.12	4.93
Cat. 398 TA	CO	0.00668	975	0.52	60	24	4,918.20	3.42	14.96
	NOx	0.0085	975	N/A	60	24	11,900.00	8.26	36.20
	SO_2	0.00205	975	0.52	60	24	1,509.33	1.05	4.59
	VOC	0.0025	975	0.52	60	24	1,840.64	1.28	5.60
	PM_{10}[4]	0.0022	975	0.52	60	24	1,619.77	1.12	4.93
Cat. 398 TA	CO	0.00668	975	0.52	60	24	4,918.20	3.42	14.96
	NOx	0.0085	975	N/A	60	24	11,900.00	8.26	36.20
	SO_2	0.00205	975	0.52	60	24	1,509.33	1.05	4.59
	VOC	0.0025	975	0.52	60	24	1,840.64	1.28	5.60
	PM_{10}[4]	0.0022	975	0.52	60	24	1,619.77	1.12	4.93
Cat. 3412TA	CO	0.00668	725	0.14	60	24	976.35	0.68	2.97
	NOx	0.0030	725	N/A	60	24	3,140.04	2.18	9.55
	SO_2	0.00205	725	0.14	60	24	299.63	0.21	0.91
	VOC	0.0025	725	0.14	60	24	365.40	0.25	1.11
	PM_{10}[4]	0.0022	725	0.14	60	24	321.55	0.22	0.98
Cat. 3412TA	CO	0.00668	725	0.41	60	24	2,880.93	2.00	8.76
	NOx	0.0055	725	N/A	60	24	5,760.00	4.00	17.52
	SO_2	0.00205	725	0.41	60	24	884.12	0.61	2.69
	VOC	0.0025	725	0.41	60	24	1,078.19	0.75	3.28
	PM_{10}[4]	0.0022	725	0.41	60	24	948.81	0.66	2.89
Rig Totals	CO		**4,375**		60	24	**18,611.88**	**12.92**	**56.61**
	NOx		**4,375**		60	24	**44,600.02**	**30.97**	**135.66**
	SO_2		**4,375**		60	24	**5,711.73**	**3.97**	**17.37**
	VOC		**4,375**		60	24	**6,965.52**	**4.84**	**21.19**
	PM_{10}[4]		**4,375**		60	24	**6,129.66**	**4.26**	**18.64**

[1] NOx based on data provided by WDEQ/Questar, all other pollutants based on AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar. Load factor for NOx is accounted for in the emission factor as it is load-weighted.
[4] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.18
Pinedale Anticline - Drilling Emissions - Tier 1 - Rig # 236

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Rig # 236
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 398 TA	CO	0.0187	975	0.52	60	24	13,681.25	9.50	41.61
	NOx	0.015	975	0.52	60	24	11,105.96	7.71	33.78
	SO_2[4]	0.00035	975	0.52	60	24	252.22	0.18	0.77
	VOC	0.0022	975	0.52	60	24	1,609.56	1.12	4.90
	PM_{10}[5]	0.00088	975	0.52	60	24	643.82	0.45	1.96
Cat. 398 TA	CO	0.0187	975	0.52	60	24	13,681.25	9.50	41.61
	NOx	0.015	975	0.52	60	24	11,105.96	7.71	33.78
	SO_2[4]	0.00035	975	0.52	60	24	252.22	0.18	0.77
	VOC	0.0022	975	0.52	60	24	1,609.56	1.12	4.90
	PM_{10}[5]	0.00088	975	0.52	60	24	643.82	0.45	1.96
Cat. 398 TA	CO	0.0187	975	0.52	60	24	13,681.25	9.50	41.61
	NOx	0.015	975	0.52	60	24	11,105.96	7.71	33.78
	SO_2[4]	0.00035	975	0.52	60	24	252.22	0.18	0.77
	VOC	0.0022	975	0.52	60	24	1,609.56	1.12	4.90
	PM_{10}[5]	0.00088	975	0.52	60	24	643.82	0.45	1.96
Cat. 3412 TA	CO	0.0187	725	0.14	60	24	2,738.95	1.90	8.33
	NOx	0.015	725	0.14	60	24	2,223.38	1.54	6.76
	SO_2[4]	0.00035	725	0.14	60	24	50.49	0.04	0.15
	VOC	0.0022	725	0.14	60	24	322.23	0.22	0.98
	PM_{10}[5]	0.00088	725	0.14	60	24	128.89	0.09	0.39
Cat. 3412 TA	CO	0.0187	725	0.41	60	24	8,021.21	5.57	24.40
	NOx	0.015	725	0.41	60	24	6,511.33	4.52	19.81
	SO_2[4]	0.00035	725	0.41	60	24	147.87	0.10	0.45
	VOC	0.0022	725	0.41	60	24	943.67	0.66	2.87
	PM_{10}[5]	0.00088	725	0.41	60	24	377.47	0.26	1.15
Rig Totals	**CO**		**4,375**		**60**	**24**	**51,803.92**	**35.97**	**157.57**
	NOx		**4,375**		**60**	**24**	**42,052.59**	**29.20**	**127.91**
	SO_2[4]		**4,375**		**60**	**24**	**955.03**	**0.66**	**2.90**
	VOC		**4,375**		**60**	**24**	**6,094.58**	**4.23**	**18.54**
	PM_{10}[5]		**4,375**		**60**	**24**	**2,437.83**	**1.69**	**7.42**

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.19
Pinedale Anticline - Drilling Emissions - Tier 1 - Caza Rig 85

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Caza Rig 85
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1 - Engines reported to be Tier 1 compliant
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 3512 TA	CO	0.0187	1,321	0.58	60	24	20,670.88	14.35	62.87
	NOx	0.015	1,321	0.58	60	24	16,779.89	11.65	51.04
	SO_2[4]	0.00035	1,321	0.58	60	24	381.08	0.26	1.16
	VOC	0.0022	1,321	0.58	60	24	2,431.87	1.69	7.40
	PM_{10}[5]	0.00088	1,321	0.58	60	24	972.75	0.68	2.96
Cat. 3512 TA	CO	0.0187	1,321	0.58	60	24	20,670.88	14.35	62.87
	NOx	0.015	1,321	0.58	60	24	16,779.89	11.65	51.04
	SO_2[4]	0.00035	1,321	0.58	60	24	381.08	0.26	1.16
	VOC	0.0022	1,321	0.58	60	24	2,431.87	1.69	7.40
	PM_{10}[5]	0.00088	1,321	0.58	60	24	972.75	0.68	2.96
Cat. 3512 TA	CO	0.0187	1,321	0.58	60	24	20,670.88	14.35	62.87
	NOx	0.015	1,321	0.58	60	24	16,779.89	11.65	51.04
	SO_2[4]	0.00035	1,321	0.58	60	24	381.08	0.26	1.16
	VOC	0.0022	1,321	0.58	60	24	2,431.87	1.69	7.40
	PM_{10}[5]	0.00088	1,321	0.58	60	24	972.75	0.68	2.96
Rig Totals	**CO**		**3,963**		**60**	**24**	**62,012.63**	**43.06**	**188.62**
	NOx		**3,963**		**60**	**24**	**50,339.66**	**34.96**	**153.12**
	SO_2[4]		**3,963**		**60**	**24**	**1,143.23**	**0.79**	**3.48**
	VOC		**3,963**		**60**	**24**	**7,295.60**	**5.07**	**22.19**
	PM_{10}[5]		**3,963**		**60**	**24**	**2,918.24**	**2.03**	**8.88**

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.20
Pinedale Anticline - Drilling Emissions - Tier 1 - Caza Rig 86

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Caza Rig 86
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1 - Engines reported to be Tier 1 compliant
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 3512 TA	CO	0.0187	1,321	0.58	60	24	20,670.88	14.35	62.87
	NOx	0.015	1,321	0.58	60	24	16,779.89	11.65	51.04
	SO_2[4]	0.00035	1,321	0.58	60	24	381.08	0.26	1.16
	VOC	0.0022	1,321	0.58	60	24	2,431.87	1.69	7.40
	PM_{10}[5]	0.00088	1,321	0.58	60	24	972.75	0.68	2.96
Cat. 3512 TA	CO	0.0187	1,321	0.58	60	24	20,670.88	14.35	62.87
	NOx	0.015	1,321	0.58	60	24	16,779.89	11.65	51.04
	SO_2[4]	0.00035	1,321	0.58	60	24	381.08	0.26	1.16
	VOC	0.0022	1,321	0.58	60	24	2,431.87	1.69	7.40
	PM_{10}[5]	0.00088	1,321	0.58	60	24	972.75	0.68	2.96
Cat. 3512 TA	CO	0.0187	1,321	0.58	60	24	20,670.88	14.35	62.87
	NOx	0.015	1,321	0.58	60	24	16,779.89	11.65	51.04
	SO_2[4]	0.00035	1,321	0.58	60	24	381.08	0.26	1.16
	VOC	0.0022	1,321	0.58	60	24	2,431.87	1.69	7.40
	PM_{10}[5]	0.00088	1,321	0.58	60	24	972.75	0.68	2.96
Rig Totals	**CO**		**3,963**		**60**	**24**	**62,012.63**	**43.06**	**188.62**
	NOx		**3,963**		**60**	**24**	**50,339.66**	**34.96**	**153.12**
	SO_2[4]		**3,963**		**60**	**24**	**1,143.23**	**0.79**	**3.48**
	VOC		**3,963**		**60**	**24**	**7,295.60**	**5.07**	**22.19**
	PM_{10}[5]		**3,963**		**60**	**24**	**2,918.24**	**2.03**	**8.88**

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.21
Pinedale Anticline - Drilling Emissions - Tier1/AP-42 - Caza Rig 24

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Caza Rig 24
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Cat 3508s at Tier 1, 3412s at AP-42
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat 3508 TA	CO	0.0187	650	0.60	60	24	10,545.09	7.32	32.07
	NOx	0.015	650	0.60	60	24	8,560.13	5.94	26.04
	SO_2[4]	0.00035	650	0.60	60	24	194.40	0.14	0.59
	VOC	0.0022	650	0.60	60	24	1,240.60	0.86	3.77
	PM_{10}[5]	0.00088	650	0.60	60	24	496.24	0.34	1.51
Cat. 3508 TA	CO	0.0187	650	0.60	60	24	10,545.09	7.32	32.07
	NOx	0.015	650	0.60	60	24	8,560.13	5.94	26.04
	SO_2[4]	0.00035	650	0.60	60	24	194.40	0.14	0.59
	VOC	0.0022	650	0.60	60	24	1,240.60	0.86	3.77
	PM_{10}[5]	0.00088	650	0.60	60	24	496.24	0.34	1.51
Cat. 3508 TA	CO	0.0187	650	0.60	60	24	10,545.09	7.32	32.07
	NOx	0.015	650	0.60	60	24	8,560.13	5.94	26.04
	SO_2[4]	0.00035	650	0.60	60	24	194.40	0.14	0.59
	VOC	0.0022	650	0.60	60	24	1,240.60	0.86	3.77
	PM_{10}[5]	0.00088	650	0.60	60	24	496.24	0.34	1.51
Cat. 3412 TA	CO	0.00668	725	0.41	60	24	2,880.65	2.00	8.76
	NOx	0.0062	725	N/A	60	24	6,424.62	4.46	19.54
	SO_2[4]	0.00205	725	0.41	60	24	884.03	0.61	2.69
	VOC	0.0025	725	0.41	60	24	1,078.09	0.75	3.28
	PM_{10}[5]	0.0022	725	0.41	60	24	948.72	0.66	2.89
Cat. 3412 TA	CO	0.00668	725	0.41	60	24	2,880.65	2.00	8.76
	NOx	0.0062	725	N/A	60	24	6,424.62	4.46	19.54
	SO_2[4]	0.00205	725	0.41	60	24	884.03	0.61	2.69
	VOC	0.0025	725	0.41	60	24	1,078.09	0.75	3.28
	PM_{10}[5]	0.0022	725	0.41	60	24	948.72	0.66	2.89
Rig Totals	CO		3,400		60	24	37,396.56	25.97	113.75
	NOx		3,400		60	24	38,529.63	26.76	117.19
	SO_2[4]		3,400		60	24	2,351.27	1.63	7.15
	VOC		3,400		60	24	5,877.97	4.08	17.88
	PM_{10}[5]		3,400		60	24	3,386.15	2.35	10.30

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
For Caterpillar 3412TAs NOx based on data provided by WDEQ/Questar, all other pollutants based on AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO2 emission factor for the Cat. 3508TAs is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets. Cat 3412TAs are based on AP-42.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.22
Pinedale Anticline - Drilling Emissions - Tier 1 - Caza Rig 24

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Caza Rig 24
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1
Date: 6/30/2005

Engine	Pollutant	Pollutant Emission Factor[1]	Horsepower[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
		(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
Cat. 3508 TA	CO	0.0187	650	0.60	60	24	10,545.09	7.32	32.07
	NOx	0.015	650	0.60	60	24	8,560.13	5.94	26.04
	SO_2[4]	0.00035	650	0.60	60	24	194.40	0.14	0.59
	VOC	0.0022	650	0.60	60	24	1,240.60	0.86	3.77
	PM_{10}[5]	0.00088	650	0.60	60	24	496.24	0.34	1.51
Cat. 3508 TA	CO	0.0187	650	0.60	60	24	10,545.09	7.32	32.07
	NOx	0.015	650	0.60	60	24	8,560.13	5.94	26.04
	SO_2[4]	0.00035	650	0.60	60	24	194.40	0.14	0.59
	VOC	0.0022	650	0.60	60	24	1,240.60	0.86	3.77
	PM_{10}[5]	0.00088	650	0.60	60	24	496.24	0.34	1.51
Cat. 3508 TA	CO	0.0187	650	0.60	60	24	10,545.09	7.32	32.07
	NOx	0.015	650	0.60	60	24	8,560.13	5.94	26.04
	SO_2[4]	0.00035	650	0.60	60	24	194.40	0.14	0.59
	VOC	0.0022	650	0.60	60	24	1,240.60	0.86	3.77
	PM_{10}[5]	0.00088	650	0.60	60	24	496.24	0.34	1.51
Cat. 3412 TA	CO	0.0187	725	0.41	60	24	8,081.07	5.61	24.58
	NOx	0.015	725	0.41	60	24	6,559.93	4.56	19.95
	SO_2[4]	0.00035	725	0.41	60	24	148.98	0.10	0.45
	VOC	0.0022	725	0.41	60	24	950.71	0.66	2.89
	PM_{10}[5]	0.00088	725	0.41	60	24	380.29	0.26	1.16
Cat. 3412 TA	CO	0.0187	725	0.41	60	24	8,081.07	5.61	24.58
	NOx	0.015	725	0.41	60	24	6,559.93	4.56	19.95
	SO_2[4]	0.00035	725	0.41	60	24	148.98	0.10	0.45
	VOC	0.0022	725	0.41	60	24	950.71	0.66	2.89
	PM_{10}[5]	0.00088	725	0.41	60	24	380.29	0.26	1.16
Rig Totals	**CO**		**3,400**		**60**	**24**	**47,797.42**	**33.19**	**145.38**
	NOx		**3,400**		**60**	**24**	**38,800.26**	**26.94**	**118.02**
	SO_2[4]		**3,400**		**60**	**24**	**881.17**	**0.61**	**2.68**
	VOC		**3,400**		**60**	**24**	**5,623.23**	**3.91**	**17.10**
	PM_{10}[6]		**3,400**		**60**	**24**	**2,249.29**	**1.56**	**6.84**

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on data provided by WDEQ/Questar.
[3] The overall load factor is based on data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.23

Pinedale Anticline - Drilling Emissions - AP-42 - Summer Rigs

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Pinedale Anticline**
Scenario: **Summer Rigs**
Activity: **Drilling**
Emissions: **Diesel Combustion Emissions from Drilling Engines - AP-42**
Date: **6/30/2005**

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	3,216	0.50	60	24	15,384.15	10.68	46.79
NOx	0.031	3,216	0.50	60	24	71,393.50	49.58	217.16
SO_2	0.00205	3,216	0.50	60	24	4,721.18	3.28	14.36
VOC	0.0025	3,216	0.50	60	24	5,757.54	4.00	17.51
PM_{10}[4]	0.0022	3,216	0.50	60	24	5,066.64	3.52	15.41

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on Rig # 232, data provided by WDEQ/Questar.
[3] The overall load factor is based on Rig #232, data provided by WDEQ/Questar.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.24
Pinedale Anticline - Drilling Emissions - Tier 1 - Summer Rigs

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Summer Rigs
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	3,216	0.50	60	24	43,157.12	29.97	131.27
NOx	0.015	3,216	0.50	60	24	35,033.43	24.33	106.56
SO_2	0.00035	3,216	0.50	60	24	795.62	0.55	2.42
VOC	0.0022	3,216	0.50	60	24	5,077.31	3.53	15.44
PM_{10}[4]	0.00088	3,216	0.50	60	24	2,030.92	1.41	6.18

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on Rig # 232, data provided by WDEQ/Questar.
[3] The overall load factor is based on Rig #232, data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.25

Pinedale Anticline - Drilling Emissions - AP-42 - Other Winter Rigs

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Other Winter Rigs
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	5,000	0.44	60	24	21,272.86	14.77	64.70
NOx	0.031	5,000	0.44	60	24	98,721.36	68.56	300.28
SO_2	0.00205	5,000	0.44	60	24	6,528.35	4.53	19.86
VOC	0.0025	5,000	0.44	60	24	7,961.40	5.53	24.22
PM_{10}[4]	0.0022	5,000	0.44	60	24	7,006.03	4.87	21.31

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."

[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.

[3] The overall load factor is calculated based on the average load factor of Rig #236, the largest rig data on the Anticline was available for, data provided by WDEQ/Questar.

[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.26

Pinedale Anticline - Drilling Emissions - Tier 1 - Other Winter Rigs

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline Project
Scenario: Other Winter Rigs
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	5,000	0.44	60	24	59,676.71	41.44	181.52
NOx	0.015	5,000	0.44	60	24	48,443.45	33.64	147.35
SO_2[4]	0.00035	5,000	0.44	60	24	1,100.17	0.76	3.35
VOC	0.0022	5,000	0.44	60	24	7,020.79	4.88	21.35
PM_{10}[5]	0.00088	5,000	0.44	60	24	2,808.32	1.95	8.54

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] The overall load factor is calculated based on the average load factor of Rig #236, the largest rig data on the Anticline was available for, data provided by WDEQ/Questar.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.27
Pinedale Anticline - Completion Flaring Emissions

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Completion Flaring
Activity: Flaring
Date: 6/2/2005

Assumptions:

Hours of Operation:	3 days	Jonah II EIS
	24 hours/day	Jonah II EIS
Gas Flared:	5 MMCFD	Jonah II EIS
Gas Heat Content:	1000 Btu/scf	Jonah II EIS

Pollutant	Pollutant Emission Factor[1]	Emissions per Well		
	(lb/MMCF)	(lb/hr - Max)	(lb/well)	(ton/well)
NO_x[1]	68.00	14.17	1020	0.51
CO[1]	370.00	77.08	5550	2.78
VOCs[1]	63.00	13.13	945	0.47
PM_{10}[2]	7.60	1.58	114	0.06
$PM_{2.5}$[2]	7.60	1.58	114	0.06
SO_2	0.00	0.00	0.00	0.00
Benzene[2]	0.0021	0.0004	0.03	0.0000
Formaldehyde[2]	0.0750	0.02	1.13	0.0006
Hexane[2]	1.80	0.38	27.00	0.0135
Toluene[2]	0.0034	0.0007	0.051	0.0000

[1] AP-42, Tables 13.5-1 and 13.5-2, 9/91.
[2] AP-42, Tables 1.4-2 and 1.4-3 (3/98).

Note: Table data presented as found in "Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement", Technical Report, BLM, Pinedale Field Office, November, 1999.

Table D.1.28
Pinedale Anticline - Summary - 2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline Project
Scenario: Estimated 2002 Drilling and Completion Emissions
3,216 hp, 100 % Tier 0
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	#232 Rig Emissions (Tier 0) (lb/hr)	Tier 0 Fraction	Average Drilling Emissions per Rig[1] (lb/hr)	Total Emissions from all Rigs[1] (lb/hr)	Flaring Emissions[2] (lb/hr)
January	NO_x	4	2	28.85	1.0	28.85	115.39	28.33
	SO_2			3.28	1.0	3.28	13.11	0.00
	PM_{10}			3.52	1.0	3.52	14.07	3.17
February	NO_x	3	1	28.85	1.0	28.85	86.54	14.17
	SO_2			3.28	1.0	3.28	9.84	0.00
	PM_{10}			3.52	1.0	3.52	10.56	1.58
March	NO_x	3	1	28.85	1.0	28.85	86.54	14.17
	SO_2			3.28	1.0	3.28	9.84	0.00
	PM_{10}			3.52	1.0	3.52	10.56	1.58
April	NO_x	1	1	28.85	1.0	28.85	28.85	14.17
	SO_2			3.28	1.0	3.28	3.28	0.00
	PM_{10}			3.52	1.0	3.52	3.52	1.58
May	NO_x	7	3	28.85	1.0	28.85	201.93	42.50
	SO_2			3.28	1.0	3.28	22.95	0.00
	PM_{10}			3.52	1.0	3.52	24.63	4.75
June	NO_x	3	1	28.85	1.0	28.85	86.54	14.17
	SO_2			3.28	1.0	3.28	9.84	0.00
	PM_{10}			3.52	1.0	3.52	10.56	1.58
July	NO_x	8	4	28.85	1.0	28.85	230.78	56.67
	SO_2			3.28	1.0	3.28	26.23	0.00
	PM_{10}			3.52	1.0	3.52	28.15	6.33
August	NO_x	5	2	28.85	1.0	28.85	144.24	28.33
	SO_2			3.28	1.0	3.28	16.39	0.00
	PM_{10}			3.52	1.0	3.52	17.59	3.17
September	NO_x	3	1	28.85	1.0	28.85	86.54	14.17
	SO_2			3.28	1.0	3.28	9.84	0.00
	PM_{10}			3.52	1.0	3.52	10.56	1.58
October	NO_x	3	1	28.85	1.0	28.85	86.54	14.17
	SO_2			3.28	1.0	3.28	9.84	0.00
	PM_{10}			3.52	1.0	3.52	10.56	1.58
November	NO_x	0	0	28.85	1.0	28.85	0.00	0.00
	SO_2			3.28	1.0	3.28	0.00	0.00
	PM_{10}			3.52	1.0	3.52	0.00	0.00
December	NO_x	1	1	28.85	1.0	28.85	28.85	14.17
	SO_2			3.28	1.0	3.28	3.28	0.00
	PM_{10}			3.52	1.0	3.52	3.52	1.58

[1] Emissions are calculated based on 3,216 hp Questar Rig #232 at Tier 0 emissions.
[2] Flaring Emissions based on data from the "Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement Technical Report", BLM, November, 1999.

Table D.1.29
Pinedale Anticline - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline
Scenario: Estimated 2006 Drilling and Completion Emissions
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Rig # 232 (Tier 0)	Rig # 235 (Tier 0)	Rig # 236 (Tier 0)	Caza Rig # 85 (Tier 1)	Caza Rig # 86 (Tier 1)	Caza Rig #24 (Tier 0/1)	Other Winter Rigs (Tier 0)	Other Winter Rigs (Tier 1)	Other Summer Rigs (Tier 0)	Other Summer Rigs (Tier 1)	Tier 0 Fraction	Tier 1 Fraction	Average Drilling Emissions per Rig[1]	Total Emissions from all Rigs[1]	Flaring Emissions[2]
				(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)			(lb/hr)	(lb/hr)	(lb/hr)
January	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33
February	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33
March	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33
April	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33
May	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33
June	NO_x	30	5	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.24	1357.34	70.83
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.86	85.69	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.31	99.21	7.92
July	NO_x	35	5	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.14	1579.98	70.83
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.84	99.36	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.28	114.70	7.92
August	NO_x	35	5	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.14	1579.98	70.83
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.84	99.36	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.28	114.70	7.92
September	NO_x	35	5	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.14	1579.98	70.83
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.84	99.36	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.28	114.70	7.92
October	NO_x	30	5	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.24	1357.34	70.83
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.86	85.69	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.31	99.21	7.92
November	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33
December	NO_x	25	4	28.85	29.89	30.97	34.96	34.96	26.76	68.56	33.64	49.58	24.33	0.8	0.2	45.39	1134.70	56.67
	SO_2			3.28	3.35	3.97	0.79	0.79	1.63	4.53	0.76	3.28	0.55	0.8	0.2	2.88	72.03	-
	PM_{10}			3.52	3.59	4.26	2.03	2.03	2.35	4.87	1.95	3.52	1.41	0.8	0.2	3.35	83.73	6.33

[1] Emissions are calculated based on the 6 year-round drilling rigs from the WDEQ/Questar data, six (6) 5,000hp rigs to round out the winter drilling engines and the remainder as 3,216 hp rigs based on Questar Rig #232. The 6 rigs data is available for are based on Tier 0 or Tier 1 standards as appropriate per rig and engine from actual data. The other rigs use an 80% Tier 0, 20% Tier 1 ratio.
[2] Flaring Emissions based on data from the "Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement Technical Report", BLM, November, 1999.

Table D.1.30
Pinedale Anticline - Summary - 2006-2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Pinedale Anticline Project
Scenario: 2006-2002 Emissions and Modeling Scalars
Date: 6/30/2005

Month	Pollutant	Total Emissions from all Rigs (2006) (lb/hr)	Flaring Emissions (2006) (lb/hr)	Total Emissions from all Rigs (2002) (lb/hr)	Flaring Emissions (2002) (lb/hr)	Emissions Difference - Rigs - (2006 - 2002) (lb/hr)	Emissions Difference Flares - (2006 - 2002) (lb/hr)	Rig Scalar	Flare Scalar
January	NO_x	1134.70	56.67	115.39	28.33	1019.31	28.33	0.6825	0.50
	SO_2	72.03	0.00	13.11	0.00	58.91	0.00	0.6581	N/A
	PM_{10}	83.73	6.33	14.07	3.17	69.65	3.17	0.6688	0.50
February	NO_x	1134.70	56.67	86.54	14.17	1048.15	42.50	0.7018	0.75
	SO_2	72.03	0.00	9.84	0.00	62.19	0.00	0.6947	N/A
	PM_{10}	83.73	6.33	10.56	1.58	73.17	4.75	0.7026	0.75
March	NO_x	1134.70	56.67	86.54	14.17	1048.15	42.50	0.7018	0.75
	SO_2	72.03	0.00	9.84	0.00	62.19	0.00	0.6947	N/A
	PM_{10}	83.73	6.33	10.56	1.58	73.17	4.75	0.7026	0.75
April	NO_x	1134.70	56.67	28.85	14.17	1105.85	42.50	0.7405	0.75
	SO_2	72.03	0.00	3.28	0.00	68.75	0.00	0.7679	N/A
	PM_{10}	83.73	6.33	3.52	1.58	80.21	4.75	0.7702	0.75
May	NO_x	1134.70	56.67	201.93	42.50	932.77	14.17	0.6246	0.25
	SO_2	72.03	0.00	22.95	0.00	49.08	0.00	0.5482	N/A
	PM_{10}	83.73	6.33	24.63	4.75	59.10	1.58	0.5675	0.25
June	NO_x	1357.34	70.83	86.54	14.17	1270.80	56.67	0.8509	1.00
	SO_2	85.69	0.00	9.84	0.00	75.86	0.00	0.8473	N/A
	PM_{10}	99.21	7.92	10.56	1.58	88.66	6.33	0.8513	1.00
July	NO_x	1579.98	70.83	230.78	56.67	1349.21	14.17	0.9034	0.25
	SO_2	99.36	0.00	26.23	0.00	73.13	0.00	0.8169	N/A
	PM_{10}	114.70	7.92	28.15	6.33	86.55	1.58	0.8311	0.25
August	NO_x	1579.98	70.83	144.24	28.33	1435.75	42.50	0.9614	0.75
	SO_2	99.36	0.00	16.39	0.00	82.97	0.00	0.9268	N/A
	PM_{10}	114.70	7.92	17.59	3.17	97.10	4.75	0.9324	0.75
September	NO_x	1579.98	70.83	86.54	14.17	**1493.44**	**56.67**	1.0000	1.00
	SO_2	99.36	0.00	9.84	0.00	**89.52**	**0.00**	1.0000	N/A
	PM_{10}	114.70	7.92	10.56	1.58	**104.14**	**6.33**	1.0000	1.00
October	NO_x	1357.34	70.83	86.54	14.17	1270.80	56.67	0.8509	1.00
	SO_2	85.69	0.00	9.84	0.00	75.86	0.00	0.8473	N/A
	PM_{10}	99.21	7.92	10.56	1.58	88.66	6.33	0.8513	1.00
November	NO_x	1134.70	56.67	0.00	0.00	1134.70	56.67	0.7598	1.00
	SO_2	72.03	0.00	0.00	0.00	72.03	0.00	0.8045	N/A
	PM_{10}	83.73	6.33	0.00	0.00	83.73	6.33	0.8040	1.00
December	NO_x	1134.70	56.67	28.85	14.17	1105.85	42.50	0.7405	0.75
	SO_2	72.03	0.00	3.28	0.00	68.75	0.00	0.7679	N/A
	PM_{10}	83.73	6.33	3.52	1.58	80.21	4.75	0.7702	0.75

Numbers that scalars are based on. These scalars are used in model input files for modeling monthly emissions.

Table D.1.31
Riley Ridge - Drilling Emissions - AP-42

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Riley Ridge
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,100	0.42	--	24	--	5.93	25.96
NOx	0.031	2,100	0.42	--	24	--	27.50	120.47
SO_2	0.00205	2,100	0.42	--	24	--	1.82	7.97
VOC	0.0025	2,100	0.42	--	24	--	2.22	9.72
PM_{10}[4]	0.0022	2,100	0.42	--	24	--	1.95	8.55

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.32

Riley Ridge - Drilling Emissions - Tier 1

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Riley Ridge**
Scenario: **Straight Drilling**
Activity: **Drilling**
Emissions: **Diesel Combustion Emissions from Drilling Engines - EPA Tier 1**
Date: **6/30/2005**

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,100	0.42	--	24	--	16.63	72.82
NOx	0.015	2,100	0.42	--	24	--	13.50	59.12
SO_2[4]	0.00035	2,100	0.42	--	24	--	0.31	1.34
VOC	0.0022	2,100	0.42	--	24	--	1.96	8.57
PM_{10}[5]	0.00088	2,100	0.42	--	24	--	0.78	3.43

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.

[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.

[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.33

Riley Ridge - Completion Flaring Emissions

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Riley Ridge
Scenario: Completion Flaring
Activity: Flaring
Date: 6/30/2005

Assumptions:

Hours of Operation:	3 days
Amount of Gas Flared:	2.5 MMSCF/well
Average Heat Content:	1189.6 Btu/scf
Average VOC Content:	6.50% weight
Average Mol. Weight	17.705 lb/lb-mol

Pollutant	Emission Factor[1]		Operational Rate		Emissions per Well		
	(lb/MMBtu)	(lb/MMscf)	(MMBtu)	(MMscf)	(lb/hr - Max)	(lb/well)	(ton/well)
NOx	0.068	-	2974.00	-	2.81	202.23	0.10
CO	0.37	-	2974.00	-	15.28	1100.38	0.55
VOCs	-	-	-	-	2.10	151.20	0.0756
SO2	-	-	-	-	0.00	0.00	0.0000
TSP	-	7.60	-	2.50	0.26	19.00	0.0095
PM10	-	7.60	-	2.50	0.26	19.00	0.0095
PM2.5	-	7.60	-	2.50	0.26	19.00	0.0095
Benzene	-	0.0021	-	2.50	0.0001	0.0053	0.0000
Toluene	-	0.0034	-	2.50	0.0001	0.0085	0.0000
Hexane	-	1.8	-	2.50	0.06	4.50	0.0023
Formaldehyde	-	0.075	-	2.50	0.00	0.19	0.0001

[1] AP-42, Volume I, Section 13.5 (9/91).

Note: Table data given as found in "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004. - Riley Ridge assumed to be similar to South Piney.

Table D.1.34
Riley Ridge - Summary - 2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Riley Ridge
Scenario: Estimated 2002 Drilling and Completion Emissions
2,100 hp, 100 % Tier 0
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Rig Emissions (Tier 0) (lb/hr)	Tier 0 Fraction	Average Drilling Emissions per Rig[1] (lb/hr)	Total Emissions from all Rigs[1] (lb/hr)	Flaring Emissions[2] (lb/hr)
January	NO_x	0	0	27.50	1.0	27.50	0.00	0.00
	SO_2			1.82	1.0	1.82	0.00	0.00
	PM_{10}			1.95	1.0	1.95	0.00	0.00
February	NO_x	0	0	27.50	1.0	27.50	0.00	0.00
	SO_2			1.82	1.0	1.82	0.00	0.00
	PM_{10}			1.95	1.0	1.95	0.00	0.00
March	NO_x	0	0	27.50	1.0	27.50	0.00	0.00
	SO_2			1.82	1.0	1.82	0.00	0.00
	PM_{10}			1.95	1.0	1.95	0.00	0.00
April	NO_x	0	0	27.50	1.0	27.50	0.00	0.00
	SO_2			1.82	1.0	1.82	0.00	0.00
	PM_{10}			1.95	1.0	1.95	0.00	0.00
May	NO_x	1	1	27.50	1.0	27.50	27.50	2.81
	SO_2			1.82	1.0	1.82	1.82	0.00
	PM_{10}			1.95	1.0	1.95	1.95	0.26
June	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
July	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
August	NO_x	4	1	27.50	1.0	27.50	110.02	2.81
	SO_2			1.82	1.0	1.82	7.28	0.00
	PM_{10}			1.95	1.0	1.95	7.81	0.26
September	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
October	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
November	NO_x	1	1	27.50	1.0	27.50	27.50	2.81
	SO_2			1.82	1.0	1.82	1.82	0.00
	PM_{10}			1.95	1.0	1.95	1.95	0.26
December	NO_x	1	1	27.50	1.0	27.50	27.50	2.81
	SO_2			1.82	1.0	1.82	1.82	0.00
	PM_{10}			1.95	1.0	1.95	1.95	0.26

[1] Emissions are calculated based on 2,100 hp 100 % Tier 0 engines.
[2] Flaring Emissions based on data from the "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004. Riley Ridge is assumed to be equivalent to South Piney.

Table D.1.35
Riley Ridge - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Riley Ridge
Scenario: Estimated 2006 Drilling and Completion Emissions
2,100 hp, 100 % Tier 0
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Rig Emissions (Tier 0) (lb/hr)	Tier 0 Fraction	Average Drilling Emissions per Rig[1] (lb/hr)	Total Emissions from all Rigs[1] (lb/hr)	Flaring Emissions[2] (lb/hr)
January	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
February	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
March	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
April	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
May	NO_x	3	1	27.50	1.0	27.50	82.51	2.81
	SO_2			1.82	1.0	1.82	5.46	0.00
	PM_{10}			1.95	1.0	1.95	5.86	0.26
June	NO_x	3	1	27.50	1.0	27.50	82.51	2.81
	SO_2			1.82	1.0	1.82	5.46	0.00
	PM_{10}			1.95	1.0	1.95	5.86	0.26
July	NO_x	6	1	27.50	1.0	27.50	165.03	2.81
	SO_2			1.82	1.0	1.82	10.91	0.00
	PM_{10}			1.95	1.0	1.95	11.71	0.26
August	NO_x	6	1	27.50	1.0	27.50	165.03	2.81
	SO_2			1.82	1.0	1.82	10.91	0.00
	PM_{10}			1.95	1.0	1.95	11.71	0.26
September	NO_x	6	1	27.50	1.0	27.50	165.03	2.81
	SO_2			1.82	1.0	1.82	10.91	0.00
	PM_{10}			1.95	1.0	1.95	11.71	0.26
October	NO_x	3	1	27.50	1.0	27.50	82.51	2.81
	SO_2			1.82	1.0	1.82	5.46	0.00
	PM_{10}			1.95	1.0	1.95	5.86	0.26
November	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26
December	NO_x	2	1	27.50	1.0	27.50	55.01	2.81
	SO_2			1.82	1.0	1.82	3.64	0.00
	PM_{10}			1.95	1.0	1.95	3.90	0.26

[1] Emissions are calculated based on 2,100 hp 100 % Tier 0 engines.
[2] Flaring Emissions based on data from the "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004. Riley Ridge is assumed to be equivalent to South Piney.

Table D.1.36
Riley Ridge - Summary - 2006-2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Riley Ridge Project
Scenario: 2006-2002 Emissions and Modeling Scalars
Date: 6/30/2005

Month	Pollutant	Total Emissions from all Rigs (2006) (lb/hr)	Flaring Emissions (2006) (lb/hr)	Total Emissions from all Rigs (2002) (lb/hr)	Flaring Emissions (2002) (lb/hr)	Emissions Difference - Rigs - (2006 - 2002) (lb/hr)	Emissions Difference - Flares - (2006 - 2002) (lb/hr)	Rig Scalar	Flare Scalar
January	NO_x	55.01	2.81	0.00	0.00	55.01	2.81	0.50	1.00
	SO_2	3.64	0.00	0.00	0.00	3.64	0.00	0.50	N/A
	PM_{10}	3.90	0.26	0.00	0.00	3.90	0.26	0.50	1.00
February	NO_x	55.01	2.81	0.00	0.00	55.01	2.81	0.50	1.00
	SO_2	3.64	0.00	0.00	0.00	3.64	0.00	0.50	N/A
	PM_{10}	3.90	0.26	0.00	0.00	3.90	0.26	0.50	1.00
March	NO_x	55.01	2.81	0.00	0.00	55.01	2.81	0.50	1.00
	SO_2	3.64	0.00	0.00	0.00	3.64	0.00	0.50	N/A
	PM_{10}	3.90	0.26	0.00	0.00	3.90	0.26	0.50	1.00
April	NO_x	55.01	2.81	0.00	0.00	55.01	**2.81**	0.50	1.00
	SO_2	3.64	0.00	0.00	0.00	3.64	**0.00**	0.50	N/A
	PM_{10}	3.90	0.26	0.00	0.00	3.90	**0.26**	0.50	1.00
May	NO_x	82.51	2.81	27.50	2.81	55.01	0.00	0.50	0.00
	SO_2	5.46	0.00	1.82	0.00	3.64	0.00	0.50	N/A
	PM_{10}	5.86	0.26	1.95	0.26	3.90	0.00	0.50	0.00
June	NO_x	82.51	2.81	55.01	2.81	27.50	0.00	0.25	0.00
	SO_2	5.46	0.00	3.64	0.00	1.82	0.00	0.25	N/A
	PM_{10}	5.86	0.26	3.90	0.26	1.95	0.00	0.25	0.00
July	NO_x	165.03	2.81	55.01	2.81	110.02	0.00	1.00	0.00
	SO_2	10.91	0.00	3.64	0.00	7.28	0.00	1.00	N/A
	PM_{10}	11.71	0.26	3.90	0.26	7.81	0.00	1.00	0.00
August	NO_x	165.03	2.81	110.02	2.81	55.01	0.00	0.50	0.00
	SO_2	10.91	0.00	7.28	0.00	3.64	0.00	0.50	N/A
	PM_{10}	11.71	0.26	7.81	0.26	3.90	0.00	0.50	0.00
September	NO_x	165.03	2.81	55.01	2.81	**110.02**	0.00	1.00	0.00
	SO_2	10.91	0.00	3.64	0.00	**7.28**	0.00	1.00	N/A
	PM_{10}	11.71	0.26	3.90	0.26	**7.81**	0.00	1.00	0.00
October	NO_x	82.51	2.81	55.01	2.81	27.50	0.00	0.25	0.00
	SO_2	5.46	0.00	3.64	0.00	1.82	0.00	0.25	N/A
	PM_{10}	5.86	0.26	3.90	0.26	1.95	0.00	0.25	0.00
November	NO_x	55.01	2.81	27.50	2.81	27.50	0.00	0.25	0.00
	SO_2	3.64	0.00	1.82	0.00	1.82	0.00	0.25	N/A
	PM_{10}	3.90	0.26	1.95	0.26	1.95	0.00	0.25	0.00
December	NO_x	55.01	2.81	27.50	2.81	27.50	0.00	0.25	0.00
	SO_2	3.64	0.00	1.82	0.00	1.82	0.00	0.25	N/A
	PM_{10}	3.90	0.26	1.95	0.26	1.95	0.00	0.25	0.00

Numbers that scalars are based on. These scalars are used in model input files for modeling monthly emissions.

Table D.1.37
South Piney - Drilling Emissions - Tier 1 - Deep Wells

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: CBM Drill Rig
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,100	0.40	10	24	1,346.69	5.61	24.58
NOx	0.031	2,100	0.40	10	24	6,249.60	26.04	114.06
SO_2	0.00205	2,100	0.40	10	24	413.28	1.72	7.54
VOC	0.0025	2,100	0.40	10	24	504.00	2.10	9.20
PM_{10}[4]	0.0022	2,100	0.40	10	24	443.52	1.85	8.09

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] Load factor taken from "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project EIS" (McVehil-Monnett, 2004)
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.38
South Piney - Drilling Emissions - Tier 1 - Deep Wells

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: CBM Drill Rig
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,100	0.40	10	24	3,777.86	15.74	68.95
NOx	0.015	2,100	0.40	10	24	3,066.73	12.78	55.97
SO_2[4]	0.00035	2,100	0.40	10	24	69.65	0.29	1.27
VOC	0.0022	2,100	0.40	10	24	444.45	1.85	8.11
PM_{10}[5]	0.00088	2,100	0.40	10	24	177.78	0.74	3.24

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] Load factor taken from "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project EIS" (McVehil-Monnett, 2004)
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.39
South Piney - Drilling Emissions - Tier 1 - Deep Wells

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: Deep Drill Rig
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,600	0.40	12	24	2,000.79	6.95	30.43
NOx	0.031	2,600	0.40	12	24	9,285.12	32.24	141.21
SO_2	0.00205	2,600	0.40	12	24	614.02	2.13	9.34
VOC	0.0025	2,600	0.40	12	24	748.80	2.60	11.39
PM_{10}[4]	0.0022	2,600	0.40	12	24	658.94	2.29	10.02

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] Load factor taken from "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project EIS" (McVehil-Monnett, 2004)
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.40
South Piney - Drilling Emissions - Tier 1 - Deep Wells

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: Deep Drill Rig
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,600	0.40	12	24	5,612.82	19.49	85.36
NOx	0.015	2,600	0.40	12	24	4,556.29	15.82	69.29
SO_2[4]	0.00035	2,600	0.40	12	24	103.48	0.36	1.57
VOC	0.0022	2,600	0.40	12	24	660.33	2.29	10.04
PM_{10}[5]	0.00088	2,600	0.40	12	24	264.13	0.92	4.02

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] Load factor taken from "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project EIS" (McVehil-Monnett, 2004)
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.41
South Piney - Completion Flaring Emissions - CBM Wells

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: Completion Flaring
Activity: Flaring
Formation: Mesa Verde
Date: 6/30/2005

Assumptions:

Hours of Operation:	3	days
Amount of Gas Flared:	0.25	MMSCF/well
Average Heat Content:	1048.413	Btu/scf
Average VOC Content:	2.50%	weight
Average Mol. Weight	17.705	lb/lb-mol

Pollutant	Emission Factor[1]		Operational Rate		Emissions per Well		
	(lb/MMBtu)	(lb/MMscf)	(MMBtu)	(MMscf)	(lb/hr - Max)	(lb/well)	(ton/well)
NOx	0.068	-	262.10	-	0.25	17.82	0.01
CO	0.37	-	262.10	-	1.35	96.98	0.05
VOCs	-	-	-	-	0.08	5.90	0.0030
SO2	-	-	-	-	0.00	0.00	0.0000
TSP	-	7.60	-	0.25	0.03	1.90	0.0010
PM10	-	7.60	-	0.25	0.03	1.90	0.0010
PM2.5	-	7.60	-	0.25	0.03	1.90	0.0010
Benzene	-	0.0021	-	0.25	0.0000	0.0005	0.0000
Toluene	-	0.0034	-	0.25	0.0000	0.0009	0.0000
Hexane	-	1.8	-	0.25	0.01	0.45	0.0002
Formaldehyde	-	0.075	-	0.25	0.00	0.02	0.0000

[1] AP-42, Volume I, Section 13.5 (9/91).

Note: Data taken from "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004.

Table D.1.42
South Piney - Completion Flaring Emissions - Deep Wells

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: Completion Flaring
Activity: Flaring
Formation: Frontier
Date: 6/30/2005

Assumptions:

Hours of Operation:	3	days
Amount of Gas Flared:	2.5	MMSCF/well
Average Heat Content:	1189.6	Btu/scf
Average VOC Content:	6.50%	weight
Average Mol. Weight	17.705	lb/lb-mol

Pollutant	Emission Factor[1]		Operational Rate		Emissions per Well		
	(lb/MMBtu)	(lb/MMscf)	(MMBtu)	(MMscf)	(lb/hr - Max)	(lb/well)	(ton/well)
NOx	0.068	-	2974.00	-	2.81	202.23	0.10
CO	0.37	-	2974.00	-	15.28	1100.38	0.55
VOCs	-	-	-	-	2.10	151.20	0.0756
SO2	-	-	-	-	0.00	0.00	0.0000
TSP	-	7.60	-	2.50	0.26	19.00	0.0095
PM10	-	7.60	-	2.50	0.26	19.00	0.0095
PM2.5	-	7.60	-	2.50	0.26	19.00	0.0095
Benzene	-	0.0021	-	2.50	0.0001	0.0053	0.0000
Toluene	-	0.0034	-	2.50	0.0001	0.0085	0.0000
Hexane	-	1.8	-	2.50	0.06	4.50	0.0023
Formaldehyde	-	0.075	-	2.50	0.00	0.19	0.0001

[1] AP-42, Volume I, Section 13.5 (9/91).

Note: Table data given as found in "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004.

Table D.1.43
South Piney - Summary - 2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: Estimated 2002 Drilling and Completion Emissions
77% CBM Wells, 23% Deep Gas Wells
2100 hp CBM, 2,600 hp Deep
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	CBM Rig (Tier 0) (lb/hr)	Deep Rig (Tier 0) (lb/hr)	CBM Flaring (lb/hr)	Deep Flaring (lb/hr)	CBM Fraction	Deep Fraction	Tier 0 Fraction	Average Drilling Emissions per Rig[1] (lb/hr)	Total Emissions from all Rigs[1] (lb/hr)	Flaring Emissions[2] (lb/hr)
January	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
February	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
March	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
April	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
May	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
June	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
July	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
August	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
September	NO_x	2	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	54.93	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	3.63	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	3.90	0.08
October	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
November	NO_x	2	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	54.93	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	3.63	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	3.90	0.08
December	NO_x	1	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	27.47	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	1.82	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	1.95	0.08

[1] Emissions are calculated based on all Tier 0 rigs, 77% of which are 2,100 hp CBM rigs and 23% are 2,600 hp deep gas rigs.
[2] Flaring Emissions based on data from the "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004. Flaring is also ratioed to 77% CBM completions and 23% deep gas completions.

Table D.1.44
South Piney - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney
Scenario: Estimated 2006 Drilling and Completion Emissions
77% CBM Wells, 23% Deep Gas Wells
2100 hp CBM, 2,600 hp Deep
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	CBM Rig (Tier 0) (lb/hr)	Deep Rig (Tier 0) (lb/hr)	CBM Flaring (lb/hr)	Deep Flaring (lb/hr)	CBM Fraction	Deep Fraction	Tier 0 Fraction	Average Drilling Emissions per Rig[1] (lb/hr)	Total Emissions from all Rigs[1] (lb/hr)	Flaring Emissions[2] (lb/hr)
January	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
February	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
March	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
April	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
May	NO_x	3	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	82.40	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	5.45	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	5.85	0.08
June	NO_x	3	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	82.40	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	5.45	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	5.85	0.08
July	NO_x	3	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	82.40	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	5.45	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	5.85	0.08
August	NO_x	3	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	82.40	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	5.45	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	5.85	0.08
September	NO_x	3	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	82.40	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	5.45	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	5.85	0.08
October	NO_x	3	1	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	82.40	0.84
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	5.45	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	5.85	0.08
November	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00
December	NO_x	0	0	26.04	32.24	0.25	2.81	0.77	0.23	1.0	27.47	0.00	0.00
	SO_2			1.72	2.13	0.00	0.00	0.77	0.23	1.0	1.82	0.00	0.00
	PM_{10}			1.85	2.29	0.03	0.26	0.77	0.23	1.0	1.95	0.00	0.00

[1] Emissions are calculated based on all Tier 0 rigs, 77% of which are 2,100 hp CBM rigs and 23% are 2,600 hp deep gas rigs.
[2] Flaring Emissions based on data from the "Draft Air Quality Technical Support Document for the South Piney Natural Gas Development Project Environmental Impact Statement", August, 2004.
Flaring is also ratioed to 77% CBM completions and 23% deep gas completions.

Table D.1.45
South Piney - Summary - 2006-2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: South Piney Project
Scenario: 2006-2002 Emissions and Modeling Scalars
Date: 6/30/2005

Month	Pollutant	Total Emissions from all Rigs (2006) (lb/hr)	Flaring Emissions (2006) (lb/hr)	Total Emissions from all Rigs (2002) (lb/hr)	Flaring Emissions (2002) (lb/hr)	Emissions Difference - Rigs - (2006 - 2002) (lb/hr)	Emissions Difference - Flares - (2006 - 2002) (lb/hr)	Rig Scalar	Flare Scalar
January	NO_x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
	PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	NO_x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
	PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	NO_x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
	PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
April	NO_x	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SO_2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A
	PM_{10}	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May	NO_x	82.40	0.84	0.00	0.00	82.40	0.84	1.00	1.00
	SO_2	5.45	0.00	0.00	0.00	5.45	0.00	1.00	N/A
	PM_{10}	5.85	0.08	0.00	0.00	5.85	0.08	1.00	1.00
June	NO_x	82.40	0.84	0.00	0.00	82.40	0.84	1.00	1.00
	SO_2	5.45	0.00	0.00	0.00	5.45	0.00	1.00	N/A
	PM_{10}	5.85	0.08	0.00	0.00	5.85	0.08	1.00	1.00
July	NO_x	82.40	0.84	0.00	0.00	82.40	0.84	1.00	1.00
	SO_2	5.45	0.00	0.00	0.00	5.45	0.00	1.00	N/A
	PM_{10}	5.85	0.08	0.00	0.00	5.85	0.08	1.00	1.00
August	NO_x	82.40	0.84	0.00	0.00	82.40	0.84	1.00	1.00
	SO_2	5.45	0.00	0.00	0.00	5.45	0.00	1.00	N/A
	PM_{10}	5.85	0.08	0.00	0.00	5.85	0.08	1.00	1.00
September	NO_x	82.40	0.84	54.93	0.84	27.47	0.00	0.33	0.00
	SO_2	5.45	0.00	3.63	0.00	1.82	0.00	0.33	N/A
	PM_{10}	5.85	0.08	3.90	0.08	1.95	0.00	0.33	0.00
October	NO_x	82.40	0.84	0.00	0.00	**82.40**	**0.84**	1.00	1.00
	SO_2	5.45	0.00	0.00	0.00	**5.45**	**0.00**	1.00	N/A
	PM_{10}	5.85	0.08	0.00	0.00	**5.85**	**0.08**	1.00	1.00
November	NO_x	0.00	0.00	54.93	0.84	-54.93	-0.84	-0.67	-1.00
	SO_2	0.00	0.00	3.63	0.00	-3.63	0.00	-0.67	N/A
	PM_{10}	0.00	0.00	3.90	0.08	-3.90	-0.08	-0.67	-1.00
December	NO_x	0.00	0.00	27.47	0.84	-27.47	-0.84	-0.33	-1.00
	SO_2	0.00	0.00	1.82	0.00	-1.82	0.00	-0.33	N/A
	PM_{10}	0.00	0.00	1.95	0.08	-1.95	-0.08	-0.33	-1.00

Numbers that scalars are based on. These scalars are used in model input files for modeling monthly emissions.

Table D.1.46
Jack Morrow Hills - Drilling Emissions - AP-42

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jack Morrow Hills
Scenario: Straight Drilling
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	2,100	0.42	--	24	--	5.93	25.96
NOx	0.031	2,100	0.42	--	24	--	27.50	120.47
SO_2	0.00205	2,100	0.42	--	24	--	1.82	7.97
VOC	0.0025	2,100	0.42	--	24	--	2.22	9.72
PM_{10}[4]	0.0022	2,100	0.42	--	24	--	1.95	8.55

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.47

Jack Morrow Hills - Drilling Emissions - Tier 1

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Jack Morrow Hills**
Scenario: **Straight Drilling**
Activity: **Drilling**
Emissions: **Diesel Combustion Emissions from Drilling Engines - EPA Tier 1**
Date: **6/30/2005**

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	2,100	0.42	--	24	--	16.63	72.82
NOx	0.015	2,100	0.42	--	24	--	13.50	59.12
SO_2[4]	0.00035	2,100	0.42	--	24	--	0.31	1.34
VOC	0.0022	2,100	0.42	--	24	--	1.96	8.57
PM_{10}[5]	0.00088	2,100	0.42	--	24	--	0.78	3.43

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.

[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.

[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%. Therefore, the overall load factor = 0.65 * 0.65 = 0.42.

[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.

[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.48
Jack Morrow Hills - Completion Flaring Emissions

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jack Morrow Hills
Scenario: All Scenarios
Activity: Completion/Testing Flaring
Emissions: Gas Flaring without High Pressure Flowback Separator Units
Date: 6/30/2005

Flaring Specifications:

Total Volume of Gas Emitted	35000	mcf
Total Volume of Condensate Emitted	250	bbls
Average Heat Content	1092.9	BTU/scf
Flaring/Flowback Activity Duration	120	hrs/well
Flaring Duration	80	hr/well
Pre-ignition Flow-back Duration	40	hr/well
Pre-ignition Flow-back Time Involving a Gas Stream	10	%
Actual Hours Gas is Vented	4	hrs
Total Hours in which Gas is Vented or Flared[1]	84	hrs
Average Flowrate of Gas[2]	416.67	mcf/hr
Total Volume of Gas Vented[3]	1,666.67	mcf
Total Volume of Flared Gas[4]	33,333.33	mcf
Average Flowrate of Condensate	2.98	bbls/hr
Pre-flare Volume of Condensate	11.90	bbls
Volume of Condensate Flared	238.10	bbls

Activity	Volume	Volume Units	Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source[6]	Total Emissions (tons)	Duration (hours)	Hourly Emissions (lb/hr)
Venting - Natural Gas [5]	1,666.67	mcf	VOC	4.70	lb / 1000 scf	Gas Constituent Analysis	3.91	4	1,956.87
			HAP (total)	0.17	lb / 1000 scf	Gas Constituent Analysis	0.14	4	71.37
			n-Hexane	0.08	lb / 1000 scf	Gas Constituent Analysis	0.070	4	35.13
			Benzene	0.026	lb / 1000 scf	Gas Constituent Analysis	0.022	4	10.75
			Toluene	0.041	lb / 1000 scf	Gas Constituent Analysis	0.034	4	17.02
			Ethylbenzene	0.0019	lb / 1000 scf	Gas Constituent Analysis	0.0016	4	0.80
			Xylenes	0.018	lb / 1000 scf	Gas Constituent Analysis	0.015	4	7.67
Flaring - Natural Gas	33,333.33	mcf	NOx	0.068	lb / 10^6 BTU	AP-42 Section 13.5	1.24	80	30.97
			CO	0.37	lb / 10^6 BTU	AP-42 Section 13.5	6.74	80	168.49
			VOC	2.35	lb / 1000 scf	Gas Constituent Analysis	39.14	80	978.43
			HAP (total)	0.09	lb / 1000 scf	Gas Constituent Analysis	1.43	80	35.69
			n-Hexane	0.042	lb / 1000 scf	Gas Constituent Analysis	0.70	80	17.57
			Benzene	0.013	lb / 1000 scf	Gas Constituent Analysis	0.22	80	5.38
			Toluene	0.020	lb / 1000 scf	Gas Constituent Analysis	0.34	80	8.51
			Ethylbenzene	0.001	lb / 1000 scf	Gas Constituent Analysis	0.016	80	0.40
			Xylenes	0.009	lb / 1000 scf	Gas Constituent Analysis	0.15	80	3.83
Flaring - Condensate	238.10	bbls	VOC	121.98	lb/bbl	:ondensate Constituent Analysi	14.52	80	363.03
			HAP (total)	25.85	lb/bbl	:ondensate Constituent Analysi	3.08	80	76.93
			n-hexane	4.59	lb/bbl	:ondensate Constituent Analysi	0.55	80	13.67
			Benzene	1.42	lb/bbl	:ondensate Constituent Analysi	0.17	80	4.22
			Toluene	6.11	lb/bbl	:ondensate Constituent Analysi	0.73	80	18.19
			Ethylbenzene	0.74	lb/bbl	:ondensate Constituent Analysi	0.09	80	2.19
			Xylenes	12.99	lb/bbl	:ondensate Constituent Analysi	1.55	80	38.66

[1] Calculated as 10% * 40 hrs of pre-ignition flowback + 80 hrs of flaring.
[2] Calculated as 3500 mcf / 84 hrs.
[3] Calculated as 416.67 mcf/hr * 4 hrs.
[4] Calculated as 416.67 mcf/hr * 80 hrs.
[5] An estimated 11.9 bbl of condensate are captured prior to flare ignition. Flashing from this condensate is not analyzed.
[6] For all emission factors that used the constituent analysis, a 50% destruction rate was assumed.
Note: Jack Morrow Hills completion flaring assumed to be similar to Jonah Infill Project estimated flaring.

Table D.1.49

Jack Morrow Hills - Summary - 2002

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jack Morrow Hills
Scenario: Estimated 2002 Drilling and Completion Emissions
2,600 hp, 100% Tier 0
Date: 6/30/2005

Month[1]	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Drill Rig (Tier 0)	Tier 0 Fraction	Average Drilling Emissions per Rig[2]	Total Emissions from all Rigs[2]	Flaring Emissions[3]
				(lb/hr)		(lb/hr)	(lb/hr)	(lb/hr)
All	NO_x	1	1	27.50	1.0	**27.50**	**27.50**	**30.97**
	SO_2			1.82	1.0	**1.82**	**1.82**	**-**
	PM_{10}			1.95	1.0	**1.95**	**1.95**	**-**

[1] All months have equal numbers of 1 drilling rig and 1 flare.
[2] Emissions based on 100% Tier 0 engines.
[3] Flaring emissions taken from the "Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement", November, 2004. Jack Morrow Hills flaring assumed to be equivalent to that calculated for the Jonah Infill Project.

Table D.1.50
Jack Morrow Hills - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jack Morrow Hills
Scenario: Estimated 2006 Drilling and Completion Emissions
2,600 hp, 100% Tier 0
Date: 6/30/2005

Month[1]	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Drill Rig (Tier 0)	Tier 0 Fraction	Average Drilling Emissions per Rig[2]	Total Emissions from all Rigs[2]	Flaring Emissions[3]
				(lb/hr)		(lb/hr)	(lb/hr)	(lb/hr)
All	NO_x	1	1	27.50	1.0	**27.50**	**27.50**	**30.97**
	SO_2			1.82	1.0	**1.82**	**1.82**	**-**
	PM_{10}			1.95	1.0	**1.95**	**1.95**	**-**

[1] All months have equal numbers of 1 drilling rig and 1 flare.
[2] Emissions based on 100% Tier 0 engines.
[3] Flaring emissions taken from the "Draft Air Quality Technical Support Document for the Jonah Infill Drilling Project Environmental Impact Statement", November, 2004. Jack Morrow Hills flaring assumed to be equivalent to that calculated for the Jonah Infill Project.

Table D.1.51
Wildcat Rigs - Drilling Emissions - AP-42

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Wildcat Rigs
Scenario:
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA AP-42
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.00668	5,000	0.42	--	24	--	14.11	61.81
NOx	0.031	5,000	0.42	--	24	--	65.49	286.84
SO_2	0.00205	5,000	0.42	--	24	--	4.33	18.97
VOC	0.0025	5,000	0.42	--	24	--	5.28	23.13
PM_{10}[4]	0.0022	5,000	0.42	--	24	--	4.65	20.36

[1] AP-42 (EPA, 1996), Section 3.3, Gasoline and Diesel Industrial Engines. Table 3.3-1, "Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines."
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] $PM_{2.5}$ assumed equivalent to PM_{10} for drilling engines.

Table D.1.52
Wildcat Rigs - Drilling Emissions - Tier 1

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Wildcat Rigs
Scenario:
Activity: Drilling
Emissions: Diesel Combustion Emissions from Drilling Engines - EPA Tier 1
Date: 6/30/2005

Pollutant	Pollutant Emission Factor[1]	Total Horsepower All Engines[2]	Overall Load Factor[3]	Drilling Activity Duration	Drilling Activity Duration	Emissions Per Well	Emissions per Rig	Yearly Emissions Per Rig Based on Continuous Operation
	(lb/hp-hr)	(hp)		(days/well)	(hours/day)	(lb/well)	(lb/hr)	(tpy)
CO	0.0187	5,000	0.42	--	24	--	39.59	173.39
NOx	0.015	5,000	0.42	--	24	--	32.14	140.75
SO_2[4]	0.00035	5,000	0.42	--	24	--	0.73	3.20
VOC	0.0022	5,000	0.42	--	24	--	4.66	20.40
PM_{10}[5]	0.00088	5,000	0.42	--	24	--	1.86	8.16

[1] Emission factor for Tier 1 engine taken from Diesel Net, Emissions Standards: USA: Nonroad Diesel Engines, Table 1, "EPA Tier 1-3 Nonroad Diesel Engine Emission Standards, g/kWh (g/bhp-hr)." Available on-line at http://www.dieselnet.com/standards/us/offroad.html.
[2] Drilling engine horsepower based on 5/26/2005 e-mail from Carol Kruse, BLM.
[3] The overall load factor is calculated based on average throttle setting of 65% and a load factor of 65%.
Therefore, the overall load factor = 0.65 * 0.65 = 0.42.
[4] The SO_2 emission factor is calculated assuming 26.4 gal/hr fuel consumption, with 0.05% sulfur content of #2 diesel fuel, and fuel density of 7.001 lb/gal. Fuel consumption rate taken from Caterpillar "Oilfield Mechanical Rig Power" specification sheets.
[5] PM2.5 assumed equivalent to PM10 for drilling engines.

Table D.1.53
Wildcat Rigs - Summary - 2006

TRC Environmental Corporation
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Wildcat Rigs
Scenario: Estimated 2006 Drilling Emissions
5,000 hp Tier 0 engines
Date: 6/30/2005

Month	Pollutant	# of Operating Drilling Rigs	# of Operating Flares	Other Summer Rigs (Tier 0) (lb/hr)	Tier 0 Fraction	Average Drilling Emissions per Rig[1] (lb/hr)	Total Emissions from all Rigs[1] (lb/hr)	Flaring Emissions[2] (lb/hr)
January	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
February	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
March	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
April	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
May	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
June	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
July	NO_x	3	1	65.49	1.0	65.49	**196.46**	**14.17**
	SO_2			4.33	1.0	4.33	**12.99**	**0.00**
	PM_{10}			4.65	1.0	4.65	**13.94**	**1.58**
August	NO_x	3	1	65.49	1.0	65.49	**196.46**	**14.17**
	SO_2			4.33	1.0	4.33	**12.99**	**0.00**
	PM_{10}			4.65	1.0	4.65	**13.94**	**1.58**
September	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
October	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
November	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**
December	NO_x	0	0	65.49	1.0	65.49	**0.00**	**0.00**
	SO_2			4.33	1.0	4.33	**0.00**	**0.00**
	PM_{10}			4.65	1.0	4.65	**0.00**	**0.00**

[1] Emissions are calculated based on a 5,000 hp Drill Rig at Tier 0 emission factors and a 0.42 load factor
[2] Flaring Emissions based on data from the "Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statemen Technical Report", BLM, November, 1999. Wildcat flaring assumed to be equivalent to Pinedale Anticline flaring.

Table D.1.54
Compression Increases - Falcon Compressor Station

TRC Environmental
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Jonah Infill Drilling Project**
Scenario: **All Scenarios**
Activity: **Projected Jonah Field Increase in Compression**
Emissions: **Falcon C.S.**
Date: **6/30/2005**

Fuel Combustion Source:

Unit Description	Falcon Compressor Station					
Engine design increases (hp)	2,888					

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	167.00	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	4.0	17.6	BACT	0.7	g/hp-hr
Carbon monoxide	1.7	7.5	Permitted Emissions[2]	0.300	g/hp-hr
VOC	2.9	12.5	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	0.5	2.0	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from a Pinedale Anticline Permit for an engine with 0.7 g/hphr NOx.

Table D.1.55
Compression Increases - Luman Compressor Station

TRC Environmental
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: All Scenarios
Activity: Projected Jonah Field Increases
Emissions: Luman C.S.
Date: 6/30/2005

Fuel Combustion Source:

Unit Description	Luman Compressor Station					
Engine design increases (hp)	11,248					

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	650.41	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:

	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	15.6	68.4	BACT	0.7	g/hp-hr
Carbon monoxide	6.7	29.3	Permitted Emissions[2]	0.300	g/hp-hr
VOC	11.2	48.9	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	1.8	7.8	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from a Pinedale Anticline Permit for an engine with 0.7 g/hphr NOx.

Table D.1.56
Compression Increases - Bird Canyon Compressor Station

TRC Environmental
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: All Scenarios
Activity: Projected Jonah Field Increases
Emissions: Bird Canyon C.S.
Date: 6/30/2005

Fuel Combustion Source:

Unit Description	Bird Canyon Compressor Station					
Engine design increases (hp)	30,928					

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	1788.40	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:

	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	43.0	188.1	BACT	0.7	g/hp-hr
Carbon monoxide	18.4	80.6	Permitted Emissions[2]	0.300	g/hp-hr
VOC	30.7	134.4	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	4.9	21.5	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from Bird Canyon Permit for an engine with 0.7 g/hp-hr NOx.

Table D.1.57
Compression Increases - Jonah Compressor Station

TRC Environmental
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: All Scenarios
Activity: Projected Jonah Field Increases
Emissions: Jonah C.S.
Date: 6/30/2005

Fuel Combustion Source:

Unit Description	Jonah Compressor Station
Engine design increases (hp)	3,000

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	173.47	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:

	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	4.2	18.3	BACT	0.7	g/hp-hr
Carbon monoxide	1.8	7.8	Permitted Emissions[2]	0.300	g/hp-hr
VOC	3.0	13.0	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	0.5	2.1	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from a Pinedale Anticline Permit for an engine with 0.7 g/hp-hr NOx.

Table D.1.58
Compression Increases - Paradise Compressor Station

TRC Environmental
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: **Jonah Infill Drilling Project**
Scenario: **All Scenarios**
Activity: **Projected Pinedale Anticline Increases**
Emissions: **Paradise C.S.**
Date: **6/30/2005**

Fuel Combustion Source:

Unit Description	Paradise Compressor Station					
Engine design increases (hp)	9,624					

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	556.51	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:

	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	13.4	58.5	BACT	0.7	g/hp-hr
Carbon monoxide	5.7	25.1	Permitted Emissions[2]	0.300	g/hp-hr
VOC	9.5	41.8	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	1.5	6.7	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from a Pinedale Anticline WDEQ permit for an engine with 0.7 g/hp-hr NO›

Table D.1.59
Compression Increases - Gobblers Knob Compressor Station

TRC Environmental	**Project: Jonah Infill Drilling Project**
605 Skyline Drive	**Scenario: All Scenarios**
Laramie, WY 82070	**Activity: Projected Compression Increases**
Phone: (307) 742-3843	**Emissions: Gobblers Knob C.S.**
Fax: (307) 745-8317	**Date: 6/30/2005**

Fuel Combustion Source:

Unit Description	Gobblers Knob Compressor Station (Comprised of Pinedale, Mesa 1, and Mesa 2)
Engine design increases (hp)	1,160

Operating Parameters:

Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	67.08	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:

	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	1.6	7.1	BACT	0.7	g/hp-hr
Carbon monoxide	0.7	3.0	Permitted Emissions[2]	0.300	g/hp-hr
VOC	1.2	5.0	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	0.2	0.8	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from a Pinedale Anticline WDEQ permit for an engine with 0.7 g/hp-hr NOx.

Table D.1.60
Compression Increases - Jack Morrow Hills Compressor Station

TRC Environmental
605 Skyline Drive
Laramie, WY 82070
Phone: (307) 742-3843
Fax: (307) 745-8317

Project: Jonah Infill Drilling Project
Scenario: All Scenarios
Activity: Projected Compression Increases
Emissions: Jack Morrow Hills C.S.
Date: 6/30/2005

Fuel Combustion Source:

Unit Description	Jack Morrow Hills Compressor Station					
Engine design increases (hp)	2,940					
Operating Parameters:						
Operated	24	hr/day,	7	days/wk,	365	days/yr.
Operating hours	8760					
Capacity (%)	100					
Annual Engine Load Factor:	0.9					

Potential Fuel Combustion for the Year for Unit:

Volume of Natural Gas Combusted	170.00	MMSCF
Assumes gas consumed at rate of	6601	Btu/hp-hr
Heat Content	1000	Btu/scf

Emission Data:

	lb/hr	TPY	Method of Determination	Emission Factor[1]	Units
PM10	0.0	0.0	AP-42	7.71E-05	lb/MMscf
PM2.5	0.0	0.00	AP-43	7.71E-05	lb/MMscf
Sulfur dioxide	0.0	0.0	Fuel Analysis	0.00	lb/MMscf
Nitrogen oxides	4.1	17.9	BACT	0.7	g/hp-hr
Carbon monoxide	1.8	7.7	Permitted Emissions[2]	0.300	g/hp-hr
VOC	2.9	12.8	Permitted Emissions[2]	0.500	g/hp-hr
Formaldehyde	0.5	2.0	Permitted Emissions[2]	0.080	g/hp-hr

[1] Based on a 4-stroke lean burn engine, taken from AP-42 Table 3.2-3.
[2] Emission rates taken from surrounding area compression permits for an engine with 0.7 g/hp-hr NOx

Table D.1.61
Permitted Source Inventory Increases - CO Sources

Facility Name	Site ID	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Koch Exploration Co. LLC - Walker 3-1	169	03MF0434	Moffat	3.05	808.15	14.73	0.10	23.04	3.06	0.00	0.00
Questar Gas Management Co. - Lion C.S.	161	03MF0662	Moffat	4.57	866.48	12.50	0.30	14.30	0.00	0.00	0.00
Koch Exploration Co. LLC - Walker 12-5	168	03MF0808	Moffat	3.05	808.15	12.50	0.10	11.50	0.00	0.00	0.00
Koch Exploration Co. LLC - Walker 12-2	177	03MF0809	Moffat	2.13	833.15	12.50	0.10	31.23	2.07	2.22	2.22
Koch Exploration Co. LLC - Walker 12-4	178	03MF0810	Moffat	2.13	833.15	12.50	0.10	31.23	2.07	2.22	2.22
Koch Exploration Co. LLC - Walker 3-2	223	03MF0811	Moffat	2.13	833.15	12.50	0.10	31.23	2.07	2.22	2.22
Koch Exploration Co. LLC - Walker 3-4	224	03MF0812	Moffat	2.13	833.15	12.50	0.10	31.23	2.07	2.22	2.22
Koch Exploration Co. LLC - Walker 3-3	228	03MF0943	Moffat	2.13	833.15	11.34	0.10	31.23	2.07	2.22	2.22
Tom Brown, Inc. - Federal Land Bank 21-14	225	03MF0962	Moffat	9.05	294.26	11.34	0.76	1.44	0.00	0.00	0.00
Tom Brown, Inc. - Federal Land Bank 33-15	226	03MF0963	Moffat	32.93	829.82	12.50	0.76	1.44	0.00	0.00	0.00
Tom Brown, Inc. - Schroeder 33-32	229	03MF1025	Moffat	9.05	810.93	12.50	0.76	1.73	0.00	0.00	0.00
Blue Mountain Energy - Deserado Mine	14	03RB0569F	Rio Blanco	0.00	294.26	0.00	0.00	0.00	0.00	66.97	20.09
Blue Mountain Energy - Deserado Mine	14	03RB0570	Rio Blanco	0.00	294.26	0.00	0.00	0.00	0.00	54.86	54.86
KLT Gas Inc. - Pinyon Ridge Field	232	03RB0578	Rio Blanco	2.44	255.37	12.50	0.20	24.00	0.00	0.00	0.00
Blue Mountain Energy - Deserado Mine	14	12RB802-3F	Rio Blanco	22.38	294.26	7.77	0.67	0.00	0.00	8.69	2.61
Total Colorado State-Permitted Source Emissions								233.60	13.41	141.62	88.66

Table D.1.62
Permitted Source Inventory Increases - WY Sources

Company	Facility	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Williams Field Services	Opal Gas Plant	MD-917	Lincoln	16.69	742.00	1.37	34.17	(550.60)	0.00	0.00	0.00
Bill Barrett Corporation	Wallace Creek Compressor Station	MD-954	Natrona	7.32	734.80	35.40	0.30	44.40	0.00	0.00	0.00
CREDO Petroleum Company	Marianne Compressor Station	MD-971	Sweetwater	9.05	509.82	12.50	0.76	3.90	0.00	0.00	0.00
Double Eagle Petroleum Company	Cow Creek Central Production Facility	MD-951	Carbon	9.05	509.82	12.50	0.76	9.90	0.00	0.00	0.00
Mountain Gas Resources	Granger Gas Plant	MD-963	Sweetwater	7.92	904.00	32.90	0.38	16.60	0.00	0.00	0.00
Mountain Gas Resources	Hay Reservoir Central Compressor Station	MD-975	Sweetwater	13.11	880.40	20.00	0.46	16.70	0.00	0.00	0.00
Mountain Gas Resources	Storm Shelter Compressor Station	MD-935	Sweetwater	9.05	509.82	12.50	0.76	3.30	0.00	0.00	0.00
Tom Brown Incorporated	Frenchie Draw Graham Unit Central Tank Battery	CT-3436	Sweetwater	15.00	422.00	10.00	0.31	4.00	0.00	0.00	0.00
Tom Brown Incorporated	Fuller Compressor Station	CT-3449	Fremont	8.23	895.37	15.70	0.30	47.90	0.00	0.00	0.00
Warren E & P, Inc.	Pacific Rim Generator Station #1	CT-3472	Sweetwater	9.05	509.82	12.50	0.76	10.50	0.00	0.00	0.00
Western Gas Resources, Inc.	Wild Rose Compressor Station	CT-3412	Sweetwater	6.70	903.70	32.90	0.38	120.60	0.00	0.00	0.00
							Total Wyoming State-Permitted Source Emissions	(272.80)	-	-	-

Table D.1.63
Included RFFA

Company	Facility Name	Permit Number	County	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)	NO_x (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Exxon Mobil Corporation	Shute Creek Treating Facility	MD-913	Lincoln	60.66	355.00	54.78	1.83	(33.20)	(0.06)	(3.20)	(3.20)
Sinclair Oil Company	Sinclair Refinery	MD-976	Carbon	17.77	389.37	5.24	1.83	(85.70)	0.00	0.00	0.00
Anadarko Gathering Company	Blue Sky	MD-950	Carbon	11.00	730.00	71.60	0.25	17.50	0.00	0.00	0.00
Anadarko Gathering Company	Doty Mountain Compressor Station	CT-3349	Carbon	11.00	730.40	71.60	0.25	46.70	0.00	0.00	0.00
Anadarko Gathering Company	Muddy Mountain Compressor Station	CT-3352	Carbon	11.00	730.40	71.60	0.25	46.70	0.00	0.00	0.00
Anadarko Gathering Company	Red Rim Compressor Station	CT-3393	Carbon	11.00	730.40	71.60	0.25	53.00	0.00	0.00	0.00
Bill Barrett Corporation	Cooper Reservoir Unit Compressor Station	MD-904	Natrona	5.80	648.70	45.84	0.30	25.40	0.00	0.00	0.00
Duke Energy Field Services, LP	Yates Bicycle Federal Compressor #18	CT-3477	Sweetwater	9.05	509.82	12.50	0.76	6.30	0.00	0.00	0.00
Duke Energy Field Services, LP	Yates Bicycle Federal Compressor #6	CT-3507	Sweetwater	9.05	509.82	12.50	0.76	6.30	0.00	0.00	0.00
Duke Energy Field Services, LP	Yates Huffy State Compressor #16	CT-3508	Sweetwater	9.05	509.82	12.50	0.76	6.30	0.00	0.00	0.00
FMC Wyoming Corporation	Soda Ash Facility - Green River Plant	MD-964	Sweetwater	25.49	361.71	17.29	1.04	24.30	0.00	6.10	6.10
Jonah Gas Gathering Company	JGGC/OTTCO Interconnect	MD-925	Lincoln	15.00	422.00	10.00	0.31	4.10	0.00	0.00	0.00
LeGrand Johnson	Hot Mix Asphalt Plant CT-3416	CT-3416	Uinta	14.12	350.04	10.03	0.91	65.20	24.70	12.70	12.70
McMurry Ready Mix	Hot Mix Asphalt Plant	MD-899	Carbon	14.12	350.04	10.03	0.91	23.50	15.10	8.50	8.50
Merit Energy Company	South Baggs Compressor Station	CT-3542	Carbon	9.05	509.82	12.50	0.76	16.20	0.00	0.00	0.00
New Mexico Resources, LLC	Bitter Creek Zeolite Mine/Processing Plant	CT-3490	Sweetwater	15.00	422.00	10.00	0.31	38.00	7.90	9.80	9.80
Rees's Enterprise	CT-3465	CT-3465	Uinta	11.68	326.21	15.37	0.73	98.20	8.00	51.90	51.90
Sinclair Oil Company	Sinclair Refinery	MD-976	Carbon	17.77	389.37	5.24	1.83	0.00	4.30	0.40	0.40
Tom Brown Incorporated	Frenchie Draw Satellite/Graham West Station	MD-980	Fremont	9.05	509.82	12.50	0.76	18.00	0.00	0.00	0.00
Tom Brown Incorporated	Frenchie Draw/Graham Unit #5	CT-3467	Fremont	9.05	509.82	12.50	0.76	36.00	0.00	0.00	0.00
Warren E & P, Inc.	Pacific Rim Compressor Station #1	CT-3471	Sweetwater	9.05	509.82	12.50	0.76	17.10	0.00	0.00	0.00
					Total Wyoming RFFA Source Emissions			429.90	59.94	86.20	86.20

APPENDIX E

EARLY PROJECT DEVELOPMENT STAGE MODELING RESULTS

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Summary of Maximum Modeled Impacts

Table E.1.1 Maximum Modeled NO_2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Significance Level ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.049	0.1[1]	2.5	3.4	3.45	100	100
		Fitzpatrick WA	0.0040	0.1[1]	2.5	3.4	3.40	100	100
		Grand Teton NP	0.0027	0.1[1]	2.5	3.4	3.40	100	100
		Popo Agie WA	0.015	1.0	25.0	3.4	3.42	100	100
		Teton WA	0.0014	0.1[1]	2.5	3.4	3.40	100	100
		Washakie WA	0.0012	0.1[1]	2.5	3.4	3.40	100	100
		Wind River RA	0.0065	1.0	25.0	3.4	3.41	100	100
		Yellowstone NP	0.0009	0.1[1]	2.5	3.4	3.40	100	100

[1] Proposed Class I significance level, *Federal Register* Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table E.1.2 Maximum Modeled Cumulative NO_2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact	Applicable PSD Increment	Background Concentration	Total Concentration	WAAQS	NAAQS
			($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	Annual	Bridger WA	0.33	2.5	3.4	3.73	100	100
		Fitzpatrick WA	0.035	2.5	3.4	3.43	100	100
		Grand Teton NP	0.045	2.5	3.4	3.44	100	100
		Popo Agie WA	0.085	25.0	3.4	3.49	100	100
		Teton WA	0.016	2.5	3.4	3.42	100	100
		Washakie WA	0.017	2.5	3.4	3.42	100	100
		Wind River RA	0.050	25.0	3.4	3.45	100	100
		Yellowstone NP	0.010	2.5	3.4	3.41	100	100

Table E.2.1 Maximum Modeled SO_2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (µg/m³)	Applicable PSD Significance Level (µg/m³)	Applicable PSD Increment (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	WAAQS (µg/m³)	NAAQS (µg/m³)
SO_2	Annual	Bridger WA	0.004	0.1[1]	2	9.0	9.00	60	80
		Fitzpatrick WA	0.001	0.1[1]	2	9.0	9.00	60	80
		Grand Teton NP	0.0004	0.1[1]	2	9.0	9.00	60	80
		Popo Agie WA	0.002	1.0	20	9.0	9.00	60	80
		Teton WA	0.0002	0.1[1]	2	9.0	9.00	60	80
		Washakie WA	0.0003	0.1[1]	2	9.0	9.00	60	80
		Wind River RA	0.001	1.0	20	9.0	9.00	60	80
		Yellowstone NP	0.0001	0.1[1]	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.064	0.2[1]	5	43.0	43.1	260	365
		Fitzpatrick WA	0.015	0.2[1]	5	43.0	43.0	260	365
		Grand Teton NP	0.011	0.2[1]	5	43.0	43.0	260	365
		Popo Agie WA	0.018	5.0	91	43.0	43.0	260	365
		Teton WA	0.007	0.2[1]	5	43.0	43.0	260	365
		Washakie WA	0.005	0.2[1]	5	43.0	43.0	260	365
		Wind River RA	0.015	5.0	91	43.0	43.0	260	365
		Yellowstone NP	0.006	0.2[1]	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.224	1.0[1]	25	132.0	132.2	1,300	1,300
		Fitzpatrick WA	0.066	1.0[1]	25	132.0	132.1	1,300	1,300
		Grand Teton NP	0.037	1.0[1]	25	132.0	132.0	1,300	1,300
		Popo Agie WA	0.081	25.0	512	132.0	132.1	1,300	1,300
		Teton WA	0.019	1.0[1]	25	132.0	132.0	1,300	1,300
		Washakie WA	0.018	1.0[1]	25	132.0	132.0	1,300	1,300
		Wind River RA	0.048	25.0	512	132.0	132.0	1,300	1,300
		Yellowstone NP	0.015	1.0[1]	25	132.0	132.0	1,300	1,300

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table E.2.2 Maximum Modeled Cumulative SO_2 Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	Bridger WA	0.014	2	9.0	9.01	60	80
		Fitzpatrick WA	0.001	2	9.0	9.00	60	80
		Grand Teton NP	0.008	2	9.0	9.01	60	80
		Popo Agie WA	0.002	20	9.0	9.00	60	80
		Teton WA	0.003	2	9.0	9.00	60	80
		Washakie WA	0.001	2	9.0	9.00	60	80
		Wind River RA	0.002	20	9.0	9.00	60	80
		Yellowstone NP	0.002	2	9.0	9.00	60	80
SO_2	24-hr	Bridger WA	0.210	5	43.0	43.2	260	365
		Fitzpatrick WA	0.064	5	43.0	43.1	260	365
		Grand Teton NP	0.093	5	43.0	43.1	260	365
		Popo Agie WA	0.047	91	43.0	43.0	260	365
		Teton WA	0.029	5	43.0	43.0	260	365
		Washakie WA	0.019	5	43.0	43.0	260	365
		Wind River RA	0.056	91	43.0	43.1	260	365
		Yellowstone NP	0.024	5	43.0	43.0	260	365
SO_2	3-hr	Bridger WA	0.847	25	132.0	132.8	1,300	1,300
		Fitzpatrick WA	0.249	25	132.0	132.2	1,300	1,300
		Grand Teton NP	0.354	25	132.0	132.4	1,300	1,300
		Popo Agie WA	0.204	512	132.0	132.2	1,300	1,300
		Teton WA	0.093	25	132.0	132.1	1,300	1,300
		Washakie WA	0.076	25	132.0	132.1	1,300	1,300
		Wind River RA	0.230	512	132.0	132.2	1,300	1,300
		Yellowstone NP	0.096	25	132.0	132.1	1,300	1,300

Table E.3.1 Maximum Modeled PM_{10} Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact (μg/m³)	Applicable PSD Significance Level (μg/m³)	Applicable PSD Increment (μg/m³)	Background Concentration (μg/m³)	Total Concentration (μg/m³)	WAAQS (μg/m³)	NAAQS (μg/m³)
PM_{10}	Annual	Bridger WA	0.047	0.2[1]	4	16.0	16.05	50	50
		Fitzpatrick WA	0.010	0.2[1]	4	16.0	16.01	50	50
		Grand Teton NP	0.007	0.2[1]	4	16.0	16.01	50	50
		Popo Agie WA	0.022	1.0	17	16.0	16.02	50	50
		Teton WA	0.0044	0.2[1]	4	16.0	16.00	50	50
		Washakie WA	0.0042	0.2[1]	4	16.0	16.00	50	50
		Wind River RA	0.013	1.0	17	16.0	16.01	50	50
		Yellowstone NP	0.0029	0.2[1]	4	16.0	16.00	50	50
PM_{10}	24- hr	Bridger WA	0.96	0.3[1]	8	33.0	33.96	150	150
		Fitzpatrick WA	0.27	0.3[1]	8	33.0	33.27	150	150
		Grand Teton NP	0.30	0.3[1]	8	33.0	33.30	150	150
		Popo Agie WA	0.32	5.0	30	33.0	33.32	150	150
		Teton WA	0.25	0.3[1]	8	33.0	33.25	150	150
		Washakie WA	0.15	0.3[1]	8	33.0	33.15	150	150
		Wind River RA	0.30	5.0	30	33.0	33.30	150	150
		Yellowstone NP	0.21	0.3[1]	8	33.0	33.21	150	150

[1] Proposed Class I significance level, *Federal Register* /Vol. 61, No. 142, pg. 38292, July 23, 1996.

Table E.3.2 Maximum Modeled Cumulative PM_{10} Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage and Regional Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Applicable PSD Increment ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	Annual	Bridger WA	0.17	4	16.0	16.17	50	50
		Fitzpatrick WA	0.044	4	16.0	16.04	50	50
		Grand Teton NP	0.039	4	16.0	16.04	50	50
		Popo Agie WA	0.073	17	16.0	16.07	50	50
		Teton WA	0.024	4	16.0	16.02	50	50
		Washakie WA	0.020	4	16.0	16.02	50	50
		Wind River RA	0.053	17	16.0	16.05	50	50
		Yellowstone NP	0.015	4	16.0	16.02	50	50
PM_{10}	24- hr	Bridger WA	2.56	8	33.0	35.56	150	150
		Fitzpatrick WA	0.97	8	33.0	33.97	150	150
		Grand Teton NP	0.79	8	33.0	33.79	150	150
		Popo Agie WA	0.98	30	33.0	33.98	150	150
		Teton WA	0.39	8	33.0	33.39	150	150
		Washakie WA	0.53	8	33.0	33.53	150	150
		Wind River RA	0.99	30	33.0	33.99	150	150
		Yellowstone NP	0.34	8	33.0	33.34	150	150

Table E.4.1 Maximum Modeled $PM_{2.5}$ Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources

Pollutant	Averaging Time	Receptor Area	Direct Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.047	5.0	5.05	15	15
		Fitzpatrick WA	0.010	5.0	5.01	15	15
		Grand Teton NP	0.0062	5.0	5.01	15	15
		Popo Agie WA	0.022	5.0	5.02	15	15
		Teton WA	0.0040	5.0	5.00	15	15
		Washakie WA	0.0042	5.0	5.00	15	15
		Wind River RA	0.013	5.0	5.01	15	15
		Yellowstone NP	0.0027	5.0	5.00	15	15
$PM_{2.5}$	24-hr	Bridger WA	0.96	13.0	13.96	65	65
		Fitzpatrick WA	0.27	13.0	13.27	65	65
		Grand Teton NP	0.21	13.0	13.21	65	65
		Popo Agie WA	0.32	13.0	13.32	65	65
		Teton WA	0.14	13.0	13.14	65	65
		Washakie WA	0.15	13.0	13.15	65	65
		Wind River RA	0.30	13.0	13.30	65	65
		Yellowstone NP	0.12	13.0	13.12	65	65

[1] Standard not yet enforced in Wyoming.

Table E.4.2 Maximum Modeled Cumulative $PM_{2.5}$ Concentration Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage and Regional Sources

Pollutant	Averaging Time	Receptor Area	Modeled Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentratio ($\mu g/m^3$)	WAAQS[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	Annual	Bridger WA	0.17	5.0	5.17	15	15
		Fitzpatrick WA	0.045	5.0	5.05	15	15
		Grand Teton NP	0.039	5.0	5.04	15	15
		Popo Agie WA	0.076	5.0	5.08	15	15
		Teton WA	0.024	5.0	5.02	15	15
		Washakie WA	0.021	5.0	5.02	15	15
		Wind River RA	0.054	5.0	5.05	15	15
		Yellowstone NP	0.015	5.0	5.02	15	15
$PM_{2.5}$	24-hr	Bridger WA	2.55	13.0	15.55	65	65
		Fitzpatrick WA	0.96	13.0	13.96	65	65
		Grand Teton NP	0.79	13.0	13.79	65	65
		Popo Agie WA	0.97	13.0	13.97	65	65
		Teton WA	0.38	13.0	13.38	65	65
		Washakie WA	0.53	13.0	13.53	65	65
		Wind River RA	0.98	13.0	13.98	65	65
		Yellowstone NP	0.34	13.0	13.34	65	65

[1] Standard not yet enforced in Wyoming.

Table E.5.1 Maximum Predicted Impacts Within the JIDPA from Early Jonah Infill Project Development Stage Sources Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	18.8	3.4	22.2	100	100
SO_2	3 Hour	30.5	132	162.5	1,300	1,300
	24-Hour	9.7	43	52.7	260	365
	Annual	1.2	9	10.2	60	80
PM_{10}	24-Hour	82.6	33	115.6	150	150
	Annual	12.9	16	28.9	50	50
$PM_{2.5}$	24-Hour	36.2	13	49.2	65[1]	65
	Annual	6.2	5	11.2	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table E.5.2 Maximum Predicted Impacts Within the JIDPA from Early Project Development Stage and Regional Sources Compared to Ambient Air Quality Standards

Pollutant	Averaging Time	Direct Predicted Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	WAAQS ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
NO_2	Annual	27.1	3.4	30.5	100	100
SO_2	3 Hour	37.7	132	169.7	1,300	1,300
	24-Hour	12.1	43	55.1	260	365
	Annual	1.7	9	10.7	60	80
PM_{10}	24-Hour	89.0	33	122.0	150	150
	Annual	15.0	16	31.0	50	50
$PM_{2.5}$	24-Hour	49.4	13	62.4	65[1]	65
	Annual	8.2	5	13.2	15[1]	15

[1] Standard not yet enforced in Wyoming.

Table E.6.1 Maximum Modeled Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources - Direct and Total

Receptor Area	Direct Project Impact	Cumulative Modeled Impact	Total Impact[1]	Deposition Analysis Threshold for Direct Project[2]	Level of Concern for Total[3]
Bridger WA	0.0136	0.096	1.596	0.005	3.0
Fitzpatrick WA	0.0032	0.025	1.525	0.005	3.0
Grand Teton NP	0.0019	0.020	1.520	0.005	3.0
Popo Agie WA	0.0094	0.049	1.549	0.005	3.0
Teton WA	0.0011	0.011	1.511	0.005	3.0
Washakie WA	0.0013	0.012	1.512	0.005	3.0
Wind River RA	0.0049	0.033	1.533	0.005	3.0
Yellowstone NP	0.0007	0.008	1.508	0.005	3.0

1 Total impact includes N deposition value of 1.5 kg/ha-yr measured near Pinedale for the year 2001.

2 National Park Service (2001)

3 Fox et al. (1989)

Table E.6.2 Maximum Modeled Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources - Direct and Total

	Direct Project Impact	Cumulative Modeled Impact	Total Impact[1]	Deposition Analysis Threshold for Direct Project[2]	Level of Concern for Total[3]
Bridger WA	0.0018	0.0062	0.7562	0.005	3.0
Fitzpatrick WA	0.00050	0.0010	0.7510	0.005	3.0
Grand Teton NP	0.00030	0.0048	0.7548	0.005	3.0
Popo Agie WA	0.0013	0.0012	0.7512	0.005	3.0
Teton WA	0.00018	0.0023	0.7523	0.005	3.0
Washakie WA	0.00020	0.00089	0.7509	0.005	3.0
Wind River RA	0.00077	0.0010	0.7510	0.005	3.0
Yellowstone NP	0.00011	0.0015	0.7515	0.005	3.0

[1] Total impact includes S deposition value of 0.75 kg/ha-yr measured near Pinedale for the year 2001.

[2] National Park Service (2001)

[3] Fox et al. (1989)

Table E.7.1 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Early Jonah Infill Project Development Stage Sources

Lake	Wilderness Area	Background ANC (μeq/L)	Level of Acceptable Change[1] (μeq/L)	ANC Change (μeq/L)	Percent ANC Change (%)
Black Joe	Bridger	67.0	6.70	0.064	0.10%
Deep	Bridger	59.9	5.99	0.068	0.11%
Hobbs	Bridger	69.9	6.99	0.040	0.06%
Lazy Boy	Bridger	18.8	1.00	0.021	0.11%
Lower Saddlebag	Popo Agie	55.5	5.55	0.079	0.14%
Ross	Fitzpatrick	53.5	5.35	0.019	0.04%
Upper Frozen	Bridger	5.0	1.00	0.073	1.45%

[1] USFS Level of Acceptable Change (USFS 2000).

Table E.7.2 Maximum Modeled Change in Acid Neutralizing Capacity (ANC) at Acid Sensitive Lakes from Early Jonah Infill Project Development Stage and Regional Sources

Lake	Wilderness Area	Background ANC	Level of Acceptable Change[1]	ANC Change	Percent ANC Change
		(μeq/L)	(μeq/L)	(μeq/L)	(%)
Black Joe	Bridger	67.0	6.70	0.350	0.52%
Deep	Bridger	59.9	5.99	0.371	0.62%
Hobbs	Bridger	69.9	6.99	0.278	0.40%
Lazy Boy	Bridger	18.8	1.00	0.141	0.75%
Lower Saddlebag	Popo Agie	55.5	5.55	0.394	0.71%
Ross	Fitzpatrick	53.5	5.35	0.136	0.26%
Upper Frozen	Bridger	5.0	1.00	0.398	7.96%

[1] USFS Level of Acceptable Change (USFS 2000).

Table E.8.1 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources - MVISBK=6

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	2.19	28	8	2.42	34	9
Fitzpatrick WA	0.86	4	0	0.95	5	0
Grand Teton NP	0.66	1	0	0.67	1	0
Popo Agie WA	0.95	6	0	1.06	10	2
Teton WA	0.36	0	0	0.37	0	0
Washakie WA	0.42	0	0	0.43	0	0
Wind River RA	0.91	2	0	1.01	3	1
Yellowstone NP	0.32	0	0	0.32	0	0

[1] Δdv = change in deciview.

Table E.8.2 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources - MVISBK=6

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	6.04	124	61	6.57	128	59
Fitzpatrick WA	3.06	25	11	3.37	27	11
Grand Teton NP	2.60	24	8	2.63	20	8
Popo Agie WA	3.04	50	20	3.35	51	23
Teton WA	1.31	15	4	1.33	12	4
Washakie WA	1.66	9	2	1.70	10	2
Wind River RA	3.08	32	12	3.39	31	15
Yellowstone NP	1.21	6	3	1.22	5	3

[1] Δdv = change in deciview.

Table E.8.3 Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Jonah Infill Project Development Stage Sources - MVISBK=2

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	5.92	46	22	5.95	47	21
Fitzpatrick WA	2.40	9	3	2.42	8	4
Grand Teton NP	1.59	8	2	1.32	5	1
Popo Agie WA	1.46	21	1	1.08	18	1
Teton WA	1.18	5	1	0.97	3	0
Washakie WA	0.81	2	0	0.80	2	0
Wind River RA	1.16	3	2	1.11	3	1
Yellowstone NP	1.04	2	1	0.85	2	0

[1] Δdv = change in deciview.

Table E.8.4 Maximum Modeled Cumulative Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources - MVISBK=2

	FLAG Background Data[1]			IMPROVE Background Data[1]		
Receptor Area	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 0.5 Δdv	Number of Days > 1.0 Δdv
	(Δdv)	(days)	(days)	(Δdv)	(days)	(days)
Bridger WA	13.51	147	94	13.56	143	95
Fitzpatrick WA	8.12	53	26	8.15	52	19
Grand Teton NP	4.46	52	31	3.76	46	26
Popo Agie WA	4.98	93	50	3.67	89	49
Teton WA	3.94	44	28	3.32	36	20
Washakie WA	3.79	23	13	3.02	20	10
Wind River RA	6.39	33	17	3.83	32	17
Yellowstone NP	3.54	33	16	2.98	29	11

[1] Δdv = change in deciview.

Table E.8.5 Bridger Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	0.52
7	1	7	1.19	5.17
9	1	9	0.63	1.33
10	1	10	0.64	1.26
11	1	11	0.60	1.46
12	1	12	-	1.44
13	1	13	0.57	1.40
14	1	14	0.51	1.57
15	1	15	-	0.54
16	1	16	0.71	1.91
17	1	17	1.87	5.47
21	1	21	-	0.80
22	1	22	-	0.82
23	1	23	0.58	2.15
24	1	24	0.88	4.17
26	1	26	-	1.34
30	1	30	-	1.87
40	2	9	-	3.12
41	2	10	-	0.86
42	2	11	-	0.63
43	2	12	0.66	2.83
44	2	13	-	1.79
45	2	14	-	2.09
46	2	15	-	0.68
48	2	17	-	0.69
49	2	18	-	0.56
53	2	22	-	1.44
56	2	25	-	0.75
58	2	27	-	0.51
59	2	28	-	1.70
60	3	1	-	1.69
61	3	2	1.11	3.79
62	3	3	-	1.83
63	3	4	-	1.76
65	3	6	-	0.81
67	3	8	0.56	3.17
68	3	9	0.55	2.49
69	3	10	0.78	2.38
70	3	11	-	0.90
71	3	12	-	0.59
72	3	13	-	0.71
73	3	14	-	0.77
74	3	15	-	0.97
77	3	18	-	0.50
78	3	19	-	0.65
80	3	21	-	0.55
81	3	22	-	0.84
82	3	23	-	0.60
84	3	25	-	0.77
86	3	27	0.75	2.76
87	3	28	-	1.13
90	3	31	-	1.49
92	4	2	-	0.92
96	4	6	-	0.51
97	4	7	-	0.73
98	4	8	-	0.68
99	4	9	-	1.04
105	4	15	-	0.58
111	4	21	-	1.08

			Scenario	
Julian Day	Month	Day	1	2
115	4	25	-	0.57
116	4	26	-	2.02
118	4	28	-	0.99
119	4	29	-	0.77
120	4	30	-	0.78
132	5	12	-	0.87
133	5	13	-	0.55
134	5	14	-	1.10
136	5	16	-	0.71
184	7	3	-	0.57
218	8	6	-	0.70
224	8	12	-	0.67
237	8	25	-	0.75
252	9	9	-	0.54
254	9	11	-	0.74
262	9	19	-	0.56
263	9	20	-	1.08
264	9	21	-	1.02
265	9	22	-	1.02
269	9	26	-	1.59
271	9	28	-	0.67
274	10	1	-	2.05
275	10	2	-	1.17
277	10	4	-	0.51
280	10	7	-	1.05
281	10	8	0.55	1.44
285	10	12	-	1.17
290	10	17	-	0.61
295	10	22	-	0.87
298	10	25	-	0.98
304	10	31	-	0.64
305	11	1	0.87	1.91
306	11	2	-	1.13
309	11	5	-	0.70
310	11	6	-	1.34
311	11	7	-	0.51
313	11	9	-	0.51
314	11	10	-	0.51
320	11	16	-	1.08
321	11	17	-	0.69
323	11	19	-	1.04
325	11	21	0.58	2.42
326	11	22	-	2.06
329	11	25	-	0.83
330	11	26	-	0.55
331	11	27	-	1.08
336	12	2	-	0.68
338	12	4	-	2.08
339	12	5	-	0.57
342	12	8	0.89	3.18
344	12	10	-	0.61
345	12	11	-	1.73
346	12	12	-	0.91
347	12	13	-	0.74
350	12	16	0.59	2.57
353	12	19	1.33	4.70
354	12	20	2.14	5.47
355	12	21	0.87	3.94
356	12	22	0.88	4.46
357	12	23	2.19	6.04
359	12	25	-	0.61
360	12	26	-	0.81

			Scenario	
Julian Day	Month	Day	1	2
361	12	27	-	0.59
362	12	28	1.45	4.21
363	12	29	1.32	3.76
Number of Days Δ dv >= 0.5			28	124
Number of Days Δ dv >= 1.0			8	61
Maximum Δ dv			2.19	6.04

Table E.8.6 Bridger Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
2	1	2	-	0.52
5	1	5	-	0.60
7	1	7	1.37	5.80
9	1	9	0.73	1.53
10	1	10	0.74	1.45
11	1	11	0.70	1.67
12	1	12	-	1.65
13	1	13	0.66	1.60
14	1	14	0.60	1.80
15	1	15	-	0.62
16	1	16	0.82	2.19
17	1	17	2.14	6.13
21	1	21	-	0.92
22	1	22	-	0.94
23	1	23	0.68	2.46
24	1	24	1.02	4.71
26	1	26	0.53	1.54
27	1	27	-	0.54
30	1	30	-	2.14
40	2	9	0.54	3.56
41	2	10	-	0.99
42	2	11	-	0.73
43	2	12	0.77	3.23
44	2	13	-	2.06
45	2	14	0.50	2.40
46	2	15	-	0.79
48	2	17	-	0.80
49	2	18	-	0.65
53	2	22	-	1.66
56	2	25	-	0.88
58	2	27	-	0.59
59	2	28	-	1.96
60	3	1	-	1.95
61	3	2	1.29	4.30
62	3	3	0.52	2.10
63	3	4	0.58	2.02
64	3	5	-	0.52
65	3	6	-	0.94
67	3	8	0.65	3.61
68	3	9	0.64	2.86
69	3	10	0.90	2.73
70	3	11	-	1.04
71	3	12	-	0.69
72	3	13	-	0.82
73	3	14	-	0.89
74	3	15	-	1.13
75	3	16	-	0.51
77	3	18	-	0.58
78	3	19	-	0.76
80	3	21	-	0.64
81	3	22	-	0.97
82	3	23	-	0.70
84	3	25	-	0.89
86	3	27	0.87	3.15
87	3	28	-	1.31
90	3	31	-	1.72
92	4	2	-	0.84
97	4	7	-	0.66
98	4	8	-	0.62

			Scenario	
Julian Day	Month	Day	1	2
99	4	9	-	0.94
105	4	15	-	0.52
111	4	21	-	0.98
115	4	25	-	0.52
116	4	26	-	1.84
118	4	28	-	0.90
119	4	29	-	0.70
120	4	30	-	0.71
132	5	12	-	0.79
134	5	14	-	1.00
136	5	16	-	0.64
218	8	6	-	0.59
224	8	12	-	0.56
237	8	25	-	0.62
254	9	11	-	0.61
263	9	20	-	0.89
264	9	21	-	0.85
265	9	22	-	0.84
269	9	26	-	1.32
271	9	28	-	0.55
274	10	1	-	1.71
275	10	2	-	1.32
277	10	4	-	0.58
280	10	7	-	1.18
281	10	8	0.62	1.62
285	10	12	-	1.32
290	10	17	-	0.68
295	10	22	-	0.98
298	10	25	-	1.10
299	10	26	-	0.51
302	10	29	-	0.54
304	10	31	-	0.72
305	11	1	0.98	2.14
306	11	2	-	1.25
309	11	5	-	0.78
310	11	6	-	1.49
311	11	7	-	0.57
312	11	8	-	0.54
313	11	9	-	0.57
314	11	10	-	0.57
320	11	16	-	1.20
321	11	17	-	0.76
322	11	18	-	0.50
323	11	19	-	1.16
325	11	21	0.65	2.67
326	11	22	-	2.27
329	11	25	-	0.92
330	11	26	-	0.61
331	11	27	-	1.20
336	12	2	-	0.76
338	12	4	0.55	2.30
339	12	5	-	0.64
342	12	8	1.00	3.50
344	12	10	-	0.69
345	12	11	-	1.92
346	12	12	-	1.01
347	12	13	-	0.82
348	12	14	-	0.51
350	12	16	0.66	2.83
353	12	19	1.48	5.14
354	12	20	2.37	5.97
355	12	21	0.97	4.32

			Scenario	
Julian Day	Month	Day	1	2
356	12	22	0.98	4.88
357	12	23	2.42	6.57
359	12	25	-	0.68
360	12	26	-	0.90
361	12	27	-	0.66
362	12	28	1.61	4.62
363	12	29	1.47	4.13
Number of Days Δ dv >= 0.5			34	128
Number of Days Δ dv >= 1.0			10	60
Maximum Δ dv			2.42	6.57

Table E.8.7 Fitzpatrick Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	1.54
23	1	23	-	0.69
24	1	24	-	1.12
40	2	9	-	0.71
41	2	10	-	0.60
44	2	13	-	0.68
61	3	2	0.66	2.54
62	3	3	-	1.68
63	3	4	-	0.68
68	3	9	-	0.76
87	3	28	-	0.76
116	4	26	-	0.92
118	4	28	-	0.62
218	8	6	-	0.57
263	9	20	-	0.93
269	9	26	-	0.79
325	11	21	-	1.35
350	12	16	-	0.58
353	12	19	-	1.27
354	12	20	0.86	2.91
355	12	21	-	2.26
356	12	22	-	1.73
357	12	23	0.76	3.06
362	12	28	0.67	2.09
363	12	29	-	0.68
Number of Days Δ dv >= 0.5			4	25
Number of Days Δ dv >= 1.0			0	11
Maximum Δ dv			0.86	3.06

Table E.8.8 Fitzpatrick Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	1.77
23	1	23	-	0.79
24	1	24	-	1.29
40	2	9	-	0.82
41	2	10	-	0.70
44	2	13	-	0.78
61	3	2	0.76	2.91
62	3	3	0.57	1.93
63	3	4	-	0.79
68	3	9	-	0.89
69	3	10	-	0.51
87	3	28	-	0.89
116	4	26	-	0.84
118	4	28	-	0.56
263	9	20	-	0.77
269	9	26	-	0.65
280	10	7	-	0.54
285	10	12	-	0.53
325	11	21	-	1.50
350	12	16	-	0.64
353	12	19	-	1.41
354	12	20	0.95	3.21
355	12	21	-	2.50
356	12	22	-	1.92
357	12	23	0.85	3.37
362	12	28	0.75	2.31
363	12	29	-	0.76
Number of Days Δ dv >= 0.5			5	27
Number of Days Δ dv >= 1.0			0	11
Maximum Δ dv			0.95	3.37

Table E.8.9 Grand Teton National Park - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.97
6	1	6	-	0.82
24	1	24	-	0.77
25	1	25	0.66	2.60
26	1	26	-	1.25
27	1	27	-	1.46
39	2	8	-	0.63
40	2	9	-	0.77
44	2	13	-	1.24
107	4	17	-	0.89
122	5	2	-	0.54
125	5	5	-	0.72
197	7	16	-	0.51
235	8	23	-	0.75
247	9	4	-	0.64
248	9	5	-	0.54
261	9	18	-	0.79
270	9	27	-	0.66
351	12	17	-	0.63
353	12	19	-	1.12
354	12	20	-	0.62
355	12	21	-	1.22
356	12	22	-	0.96
357	12	23	-	1.20
Number of Days Δ dv >= 0.5			1	24
Number of Days Δ dv >= 1.0			0	8
Maximum Δ dv			0.66	2.60

Table E.8.10 Grand Teton National Park - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.99
6	1	6	-	0.83
24	1	24	-	0.78
25	1	25	0.67	2.63
26	1	26	-	1.27
27	1	27	-	1.48
39	2	8	-	0.65
40	2	9	-	0.78
44	2	13	-	1.26
107	4	17	-	0.80
125	5	5	-	0.64
235	8	23	-	0.58
261	9	18	-	0.60
270	9	27	-	0.50
351	12	17	-	0.64
353	12	19	-	1.15
354	12	20	-	0.64
355	12	21	-	1.25
356	12	22	-	0.98
357	12	23	-	1.23
Number of Days Δ dv >= 0.5			1	20
Number of Days Δ dv >= 1.0			0	8
Maximum Δ dv			0.67	2.63

Table E.8.11 Popo Agie Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	1.72
12	1	12	-	0.67
14	1	14	-	0.56
23	1	23	-	1.73
24	1	24	-	0.97
30	1	30	-	0.80
41	2	10	-	0.61
43	2	12	-	2.05
44	2	13	-	0.64
48	2	17	-	0.51
53	2	22	-	1.05
59	2	28	-	0.69
60	3	1	-	1.08
61	3	2	0.67	2.66
62	3	3	-	1.84
65	3	6	-	0.50
67	3	8	-	1.31
82	3	23	-	0.50
84	3	25	-	0.54
86	3	27	0.52	1.91
87	3	28	-	0.90
92	4	2	-	0.75
105	4	15	-	0.55
116	4	26	-	1.49
119	4	29	-	0.54
132	5	12	-	0.63
136	5	16	-	0.55
263	9	20	-	0.93
265	9	22	-	0.74
274	10	1	-	0.92
280	10	7	-	0.74
281	10	8	-	1.18
298	10	25	-	0.72
304	10	31	-	0.54
305	11	1	-	0.53
306	11	2	-	1.30
309	11	5	-	0.57
320	11	16	-	0.68
323	11	19	-	0.69
325	11	21	-	1.18
326	11	22	-	1.63
338	12	4	-	0.60
342	12	8	-	1.29
350	12	16	-	0.63
354	12	20	0.86	2.61
355	12	21	0.54	2.35
356	12	22	-	1.31
357	12	23	0.95	3.04
362	12	28	-	0.99
363	12	29	0.92	2.56
Number of Days Δ dv >= 0.5			6	50
Number of Days Δ dv >= 1.0			0	20
Maximum Δ dv			0.95	3.04

Table E.8.12 Popo Agie Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	1.97
12	1	12	-	0.78
14	1	14	-	0.65
23	1	23	0.51	1.98
24	1	24	-	1.12
30	1	30	-	0.92
41	2	10	-	0.71
43	2	12	-	2.36
44	2	13	-	0.74
48	2	17	-	0.59
53	2	22	-	1.21
59	2	28	-	0.80
60	3	1	-	1.25
61	3	2	0.78	3.04
62	3	3	0.50	2.12
65	3	6	-	0.58
67	3	8	-	1.51
82	3	23	-	0.58
84	3	25	-	0.63
86	3	27	0.61	2.19
87	3	28	-	1.05
92	4	2	-	0.69
105	4	15	-	0.50
116	4	26	-	1.36
132	5	12	-	0.57
136	5	16	-	0.50
263	9	20	-	0.76
265	9	22	-	0.61
274	10	1	-	0.75
280	10	7	-	0.83
281	10	8	0.54	1.33
298	10	25	-	0.81
304	10	31	-	0.61
305	11	1	-	0.60
306	11	2	-	1.44
309	11	5	-	0.64
320	11	16	-	0.76
323	11	19	-	0.77
325	11	21	-	1.31
326	11	22	-	1.81
338	12	4	-	0.67
342	12	8	0.56	1.44
350	12	16	-	0.71
354	12	20	0.96	2.88
355	12	21	0.60	2.60
356	12	22	-	1.46
357	12	23	1.06	3.35
359	12	25	-	0.51
360	12	26	-	0.55
362	12	28	-	1.10
363	12	29	1.03	2.82
Number of Days Δ dv >= 0.5			10	51
Number of Days Δ dv >= 1.0			2	23
Maximum Δ dv			1.06	3.35

Table E.8.13 Teton Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
25	1	25	-	1.18
26	1	26	-	1.19
27	1	27	-	1.31
40	2	9	-	0.68
44	2	13	-	0.71
247	9	4	-	0.55
252	9	9	-	0.51
261	9	18	-	0.53
351	12	17	-	0.52
353	12	19	-	0.74
354	12	20	-	0.67
355	12	21	-	0.76
356	12	22	-	0.56
357	12	23	-	0.93
362	12	28	-	1.20
Number of Days Δ dv >= 0.5			0	15
Number of Days Δ dv >= 1.0			0	4
Maximum Δ dv			0.00	1.31

Table E.8.14 Teton Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
25	1	25	-	1.19
26	1	26	-	1.20
27	1	27	-	1.33
40	2	9	-	0.69
44	2	13	-	0.72
351	12	17	-	0.53
353	12	19	-	0.76
354	12	20	-	0.69
355	12	21	-	0.79
356	12	22	-	0.57
357	12	23	-	0.96
362	12	28	-	1.23
Number of Days Δ dv >= 0.5			0	12
Number of Days Δ dv >= 1.0			0	4
Maximum Δ dv			0.00	1.33

Table E.8.15 Washakie Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
26	1	26	-	0.73
44	2	13	-	0.50
45	2	14	-	0.78
62	3	3	-	1.66
252	9	9	-	0.69
354	12	20	-	0.81
355	12	21	-	0.68
357	12	23	-	0.87
362	12	28	-	1.56
Number of Days Δ dv >= 0.5			0	9
Number of Days Δ dv >= 1.0			0	2
Maximum Δ dv			0.00	1.66

Table E.8.16 Washakie Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
26	1	26	-	0.74
44	2	13	-	0.52
45	2	14	-	0.79
62	3	3	-	1.70
252	9	9	-	0.53
354	12	20	-	0.84
355	12	21	-	0.70
356	12	22	-	0.51
357	12	23	-	0.90
362	12	28	-	1.61
Number of Days Δ dv >= 0.5			0	10
Number of Days Δ dv >= 1.0			0	2
Maximum Δ dv			0.00	1.70

Table E.8.17 Wind River Roadless Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	1.75
16	1	16	-	0.53
23	1	23	-	0.95
24	1	24	-	0.93
41	2	10	-	0.57
43	2	12	-	0.63
44	2	13	-	0.57
53	2	22	-	0.51
61	3	2	-	2.61
62	3	3	-	1.32
86	3	27	-	0.58
87	3	28	-	0.89
105	4	15	-	0.60
116	4	26	-	1.43
118	4	28	-	0.55
252	9	9	-	0.56
263	9	20	-	1.69
274	10	1	-	0.86
280	10	7	-	0.64
281	10	8	-	0.67
306	11	2	-	0.65
325	11	21	-	1.27
338	12	4	-	0.61
342	12	8	-	0.60
350	12	16	-	0.57
353	12	19	-	0.73
354	12	20	0.87	2.69
355	12	21	-	2.27
356	12	22	-	1.46
357	12	23	0.91	3.08
362	12	28	-	1.15
363	12	29	-	1.13
Number of Days Δ dv >= 0.5			2	32
Number of Days Δ dv >= 1.0			0	12
Maximum Δ dv			0.91	3.08

Table E.8.18 Wind River Roadless Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
3	1	3	-	0.56
7	1	7	-	2.00
16	1	16	-	0.61
23	1	23	-	1.09
24	1	24	-	1.07
41	2	10	-	0.67
43	2	12	-	0.73
44	2	13	-	0.66
53	2	22	-	0.59
61	3	2	0.54	2.99
62	3	3	-	1.52
86	3	27	-	0.67
87	3	28	-	1.03
105	4	15	-	0.54
116	4	26	-	1.30
263	9	20	-	1.40
274	10	1	-	0.71
280	10	7	-	0.72
281	10	8	-	0.76
306	11	2	-	0.73
325	11	21	-	1.41
338	12	4	-	0.68
342	12	8	-	0.67
350	12	16	-	0.64
353	12	19	-	0.81
354	12	20	0.97	2.97
355	12	21	-	2.51
356	12	22	-	1.62
357	12	23	1.01	3.39
362	12	28	-	1.27
363	12	29	-	1.25
Number of Days Δ dv >= 0.5			3	31
Number of Days Δ dv >= 1.0			1	15
Maximum Δ dv			1.01	3.39

Table E.8.19 Yellowstone National Park - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.04
25	1	25	-	1.21
26	1	26	-	0.83
27	1	27	-	1.16
261	9	18	-	0.51
353	12	19	-	0.51
Number of Days Δ dv >= 0.5			0	6
Number of Days Δ dv >= 1.0			0	3
Maximum Δ dv			0.00	1.21

Table E.8.20 Yellowstone National Park - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.05
25	1	25	-	1.22
26	1	26	-	0.85
27	1	27	-	1.18
353	12	19	-	0.53
Number of Days Δ dv >= 0.5			0	5
Number of Days Δ dv >= 1.0			0	3
Maximum Δ dv			0.00	1.22

Table E.8.21 Bridger Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	1.36	5.87
8	1	8	-	0.56
9	1	9	1.20	2.67
10	1	10	1.48	2.78
11	1	11	1.49	3.57
12	1	12	1.29	3.59
13	1	13	1.25	2.84
14	1	14	1.62	3.84
15	1	15	-	1.68
16	1	16	1.04	3.48
17	1	17	1.52	4.47
21	1	21	-	0.72
23	1	23	-	1.26
24	1	24	0.79	3.74
26	1	26	0.84	2.44
27	1	27	-	1.43
28	1	28	-	1.67
30	1	30	0.54	2.57
40	2	9	0.84	5.20
41	2	10	0.53	1.96
42	2	11	-	1.82
43	2	12	0.74	3.12
44	2	13	-	2.12
45	2	14	0.51	2.68
46	2	15	-	2.01
48	2	17	-	0.88
53	2	22	-	1.06
58	2	27	-	0.87
59	2	28	1.02	5.11
60	3	1	-	2.33
61	3	2	1.25	3.93
62	3	3	0.78	3.01
63	3	4	1.53	5.13
64	3	5	-	0.76
65	3	6	-	1.45
67	3	8	-	2.47
68	3	9	-	1.53
69	3	10	-	1.47
70	3	11	-	1.10
71	3	12	0.71	2.12
72	3	13	0.74	2.35
73	3	14	-	0.92
74	3	15	-	1.12
75	3	16	-	0.63
76	3	17	-	0.58
77	3	18	-	0.87
78	3	19	-	0.53
81	3	22	-	0.98
82	3	23	1.26	2.19
84	3	25	0.94	2.38
86	3	27	0.67	2.48
87	3	28	-	1.43
90	3	31	-	1.11
92	4	2	-	0.57
97	4	7	-	0.71

			Scenario	
Julian Day	Month	Day	1	2
98	4	8	-	0.62
99	4	9	0.99	3.20
103	4	13	-	0.55
105	4	15	-	1.15
107	4	17	-	0.67
110	4	20	-	1.25
111	4	21	-	2.09
115	4	25	-	1.05
116	4	26	0.70	4.22
118	4	28	-	0.91
119	4	29	-	2.72
120	4	30	0.77	2.55
121	5	1	-	0.87
123	5	3	-	0.76
125	5	5	-	0.69
131	5	11	-	0.56
132	5	12	1.49	3.35
133	5	13	-	1.34
134	5	14	0.92	2.43
136	5	16	-	0.73
141	5	21	-	0.71
153	6	2	-	0.59
157	6	6	-	1.21
158	6	7	-	0.93
163	6	12	-	1.60
170	6	19	0.80	2.14
180	6	29	-	0.98
184	7	3	-	0.82
192	7	11	-	0.65
202	7	21	-	0.55
203	7	22	-	0.56
205	7	24	-	0.65
218	8	6	-	0.53
224	8	12	-	1.11
236	8	24	-	1.75
237	8	25	-	1.91
249	9	6	-	1.61
252	9	9	0.85	1.96
253	9	10	-	1.76
254	9	11	-	0.88
262	9	19	-	0.77
263	9	20	0.63	3.89
264	9	21	-	2.73
265	9	22	-	4.58
269	9	26	-	1.18
270	9	27	-	0.74
271	9	28	0.85	2.67
274	10	1	0.55	3.00
275	10	2	-	0.98
280	10	7	-	1.05
281	10	8	-	0.99
282	10	9	-	0.77
285	10	12	-	0.70
297	10	24	-	0.99
298	10	25	-	2.95
304	10	31	-	2.05
305	11	1	0.68	2.48
306	11	2	-	3.18

Julian Day	Month	Day	Scenario 1	Scenario 2
310	11	6	-	0.81
311	11	7	-	0.62
312	11	8	-	0.77
313	11	9	-	1.14
314	11	10	-	1.07
317	11	13	-	1.09
320	11	16	-	0.90
322	11	18	-	1.05
323	11	19	-	0.87
325	11	21	-	1.16
326	11	22	-	1.33
329	11	25	-	0.85
331	11	27	-	0.62
337	12	3	-	0.65
338	12	4	-	1.04
339	12	5	-	0.76
341	12	7	-	0.52
342	12	8	0.87	2.23
344	12	10	-	0.58
345	12	11	-	3.81
346	12	12	1.08	2.20
347	12	13	-	1.76
348	12	14	-	1.12
350	12	16	0.74	3.36
353	12	19	2.23	7.26
354	12	20	5.21	11.29
355	12	21	2.16	7.95
356	12	22	1.46	6.84
357	12	23	5.92	13.51
359	12	25	-	0.59
360	12	26	-	0.51
361	12	27	-	1.19
362	12	28	2.04	5.65
363	12	29	1.14	3.08
Number of Days Δ dv >= 0.5			46	147
Number of Days Δ dv >= 1.0			22	94
Maximum Δ dv			5.92	13.51

Table E.8.22 Bridger Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	1.55	6.51
8	1	8	-	0.60
9	1	9	1.26	2.80
10	1	10	1.59	2.99
11	1	11	1.54	3.68
12	1	12	1.35	3.66
13	1	13	1.41	3.16
14	1	14	1.75	4.10
15	1	15	-	1.65
16	1	16	1.11	3.67
17	1	17	1.75	5.06
21	1	21	-	0.80
22	1	22	-	0.54
23	1	23	-	1.49
24	1	24	0.91	4.20
26	1	26	0.82	2.41
27	1	27	-	1.43
28	1	28	-	1.65
30	1	30	0.58	2.75
40	2	9	0.86	5.29
41	2	10	0.60	2.00
42	2	11	-	2.01
43	2	12	0.85	3.53
44	2	13	-	2.41
45	2	14	0.57	3.00
46	2	15	-	2.05
48	2	17	-	1.00
53	2	22	-	1.22
58	2	27	-	1.00
59	2	28	1.12	5.51
60	3	1	0.55	2.63
61	3	2	1.44	4.45
62	3	3	0.88	3.35
63	3	4	1.48	5.00
64	3	5	-	0.84
65	3	6	-	1.47
67	3	8	0.52	2.88
68	3	9	-	1.81
69	3	10	0.59	1.74
70	3	11	-	1.15
71	3	12	0.71	2.11
72	3	13	0.81	2.53
73	3	14	-	1.05
74	3	15	-	1.20
75	3	16	-	0.67
76	3	17	-	0.62
77	3	18	-	0.97
78	3	19	-	0.62
81	3	22	-	1.09
82	3	23	1.27	2.19
84	3	25	0.97	2.44
86	3	27	0.77	2.82
87	3	28	-	1.62
90	3	31	-	1.31

			Scenario	
Julian Day	Month	Day	1	2
92	4	2	-	0.55
97	4	7	-	0.63
98	4	8	-	0.57
99	4	9	0.79	2.60
105	4	15	-	0.98
110	4	20	-	1.06
111	4	21	-	1.62
115	4	25	-	0.75
116	4	26	0.59	3.69
118	4	28	-	0.82
119	4	29	-	1.85
120	4	30	0.51	1.75
121	5	1	-	0.73
123	5	3	-	0.59
125	5	5	-	0.52
132	5	12	0.94	2.17
133	5	13	-	0.90
134	5	14	0.56	1.59
136	5	16	-	0.62
141	5	21	-	0.50
157	6	6	-	0.98
158	6	7	-	0.68
163	6	12	-	1.26
170	6	19	0.55	1.48
180	6	29	-	0.57
184	7	3	-	0.68
205	7	24	-	0.54
224	8	12	-	0.92
236	8	24	-	1.34
237	8	25	-	1.26
249	9	6	-	1.00
252	9	9	0.58	1.35
253	9	10	-	1.12
254	9	11	-	0.72
262	9	19	-	0.56
263	9	20	-	2.22
264	9	21	-	1.51
265	9	22	-	3.12
269	9	26	-	1.00
270	9	27	-	0.60
271	9	28	0.57	1.84
274	10	1	-	1.82
275	10	2	-	1.07
280	10	7	-	1.17
281	10	8	-	1.06
282	10	9	-	0.73
285	10	12	-	0.81
295	10	22	-	0.56
297	10	24	-	1.04
298	10	25	-	2.87
304	10	31	-	1.99
305	11	1	0.75	2.32
306	11	2	-	3.15
310	11	6	-	0.93
311	11	7	-	0.68
312	11	8	-	0.79
313	11	9	-	1.20

			Scenario	
Julian Day	Month	Day	1	2
314	11	10	-	1.01
316	11	12	-	0.51
317	11	13	-	0.98
320	11	16	-	1.00
322	11	18	-	1.15
323	11	19	-	0.99
325	11	21	-	1.34
326	11	22	-	1.52
329	11	25	-	0.92
331	11	27	-	0.67
337	12	3	-	0.67
338	12	4	-	1.21
339	12	5	-	0.74
341	12	7	-	0.58
342	12	8	0.89	2.28
344	12	10	-	0.67
345	12	11	-	3.80
346	12	12	1.13	2.30
347	12	13	-	1.64
348	12	14	-	1.11
350	12	16	0.79	3.55
351	12	17	-	0.50
353	12	19	2.35	7.59
354	12	20	5.19	11.25
355	12	21	2.17	8.00
356	12	22	1.52	7.09
357	12	23	5.95	13.56
359	12	25	-	0.67
360	12	26	-	0.58
361	12	27	-	1.29
362	12	28	2.20	6.03
363	12	29	1.27	3.41
Number of Days Δ dv >= 0.5			47	143
Number of Days Δ dv >= 1.0			21	96
Maximum Δ dv			5.95	13.56

Table E.8.23 Fitzpatrick Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	1.91
11	1	11	-	0.94
12	1	12	-	1.37
13	1	13	-	0.58
14	1	14	-	0.69
16	1	16	-	0.54
24	1	24	-	1.27
26	1	26	-	0.52
40	2	9	-	2.17
41	2	10	-	1.65
44	2	13	-	0.81
45	2	14	-	0.65
61	3	2	0.75	2.73
62	3	3	0.94	3.08
63	3	4	0.61	2.66
69	3	10	-	0.50
70	3	11	-	0.70
71	3	12	-	0.88
72	3	13	-	1.16
77	3	18	-	0.71
81	3	22	-	0.73
87	3	28	-	0.73
99	4	9	-	1.08
116	4	26	-	0.96
118	4	28	-	0.62
120	4	30	-	1.28
132	5	12	-	1.07
133	5	13	-	0.92
153	6	2	-	0.58
163	6	12	-	1.50
192	7	11	-	0.53
194	7	13	-	0.73
195	7	14	-	0.71
218	8	6	-	0.78
224	8	12	-	1.02
237	8	25	-	0.99
239	8	27	-	1.80
251	9	8	-	0.67
252	9	9	-	2.44
253	9	10	-	1.18
254	9	11	-	1.05
263	9	20	0.52	4.27
264	9	21	-	1.50
269	9	26	-	0.69
325	11	21	-	0.63
350	12	16	-	0.72
353	12	19	0.71	2.15
354	12	20	2.22	6.68
355	12	21	0.87	4.86
356	12	22	-	2.92
357	12	23	2.40	8.12
362	12	28	1.08	3.28
363	12	29	-	0.60
Number of Days Δ dv >= 0.5			9	53
Number of Days Δ dv >= 1.0			3	26
Maximum Δ dv			2.40	8.12

Table E.8.24 Fitzpatrick Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	2.17
11	1	11	-	0.89
12	1	12	-	1.37
13	1	13	-	0.66
14	1	14	-	0.75
16	1	16	-	0.57
24	1	24	-	1.44
26	1	26	-	0.51
40	2	9	-	2.21
41	2	10	-	1.72
44	2	13	-	0.93
45	2	14	-	0.67
61	3	2	0.87	3.11
62	3	3	1.06	3.43
63	3	4	0.59	2.59
68	3	9	-	0.52
69	3	10	-	0.56
70	3	11	-	0.74
71	3	12	-	0.87
72	3	13	-	1.23
77	3	18	-	0.79
81	3	22	-	0.74
84	3	25	-	0.54
87	3	28	-	0.85
99	4	9	-	0.86
116	4	26	-	0.86
118	4	28	-	0.54
120	4	30	-	0.80
132	5	12	-	0.74
133	5	13	-	0.72
163	6	12	-	1.18
194	7	13	-	0.54
195	7	14	-	0.55
218	8	6	-	0.64
224	8	12	-	0.71
237	8	25	-	0.61
239	8	27	-	1.45
252	9	9	-	1.62
253	9	10	-	0.74
254	9	11	-	0.74
263	9	20	-	2.56
264	9	21	-	0.87
269	9	26	-	0.58
325	11	21	-	0.73
350	12	16	-	0.77
353	12	19	0.76	2.27
354	12	20	2.21	6.65
355	12	21	0.88	4.90
356	12	22	-	3.05
357	12	23	2.41	8.15
362	12	28	1.17	3.53
363	12	29	-	0.65
Number of Days Δ dv >= 0.5			8	52
Number of Days Δ dv >= 1.0			4	19
Maximum Δ dv			2.41	8.15

Table E.8.25 Grand Teton National Park - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.55
6	1	6	-	0.81
16	1	16	-	0.65
20	1	20	-	1.75
24	1	24	-	0.72
25	1	25	0.68	2.74
26	1	26	0.55	1.96
27	1	27	1.59	4.45
28	1	28	0.50	2.00
39	2	8	-	0.69
40	2	9	-	2.14
44	2	13	-	1.29
62	3	3	-	0.51
74	3	15	-	0.56
83	3	24	-	0.65
107	4	17	-	0.95
108	4	18	-	0.69
111	4	21	-	0.72
118	4	28	-	0.61
122	5	2	-	1.98
125	5	5	1.05	3.04
126	5	6	-	1.05
127	5	7	0.65	2.16
128	5	8	-	0.73
131	5	11	-	1.45
147	5	27	-	1.72
154	6	3	-	1.58
163	6	12	-	1.97
173	6	22	-	0.78
180	6	29	-	1.12
194	7	13	-	0.70
197	7	16	-	2.09
199	7	18	-	0.67
202	7	21	-	0.75
204	7	23	-	0.59
235	8	23	0.67	4.45
236	8	24	-	1.28
238	8	26	-	1.07
239	8	27	-	0.51
247	9	4	-	2.42
248	9	5	-	1.68
252	9	9	-	1.89
261	9	18	-	0.85
270	9	27	-	0.68
272	9	29	-	1.24
351	12	17	-	1.23
353	12	19	-	1.74
354	12	20	-	1.68
355	12	21	0.56	3.26
356	12	22	-	1.73
357	12	23	-	3.44
362	12	28	-	0.72
Number of Days Δ dv >= 0.5			8	52
Number of Days Δ dv >= 1.0			2	31
Maximum Δ dv			1.59	4.45

Table E.8.26 Grand Teton National Park - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.60
6	1	6	-	0.82
16	1	16	-	0.54
20	1	20	-	1.44
24	1	24	-	0.73
25	1	25	0.68	2.77
26	1	26	0.54	1.93
27	1	27	1.32	3.76
28	1	28	-	1.66
39	2	8	-	0.59
40	2	9	-	1.89
44	2	13	-	1.32
62	3	3	-	0.50
83	3	24	-	0.63
107	4	17	-	0.86
111	4	21	-	0.58
118	4	28	-	0.54
122	5	2	-	1.52
125	5	5	0.78	2.31
126	5	6	-	0.83
127	5	7	-	1.49
128	5	8	-	0.55
131	5	11	-	1.09
147	5	27	-	1.26
154	6	3	-	1.14
163	6	12	-	1.48
173	6	22	-	0.57
180	6	29	-	0.93
197	7	16	-	1.47
199	7	18	-	0.50
235	8	23	-	2.91
236	8	24	-	0.82
238	8	26	-	0.63
247	9	4	-	1.68
248	9	5	-	1.16
252	9	9	-	1.14
261	9	18	-	0.66
270	9	27	-	0.53
272	9	29	-	0.93
351	12	17	-	1.17
353	12	19	-	1.70
354	12	20	-	1.53
355	12	21	0.52	3.03
356	12	22	-	1.66
357	12	23	-	3.20
362	12	28	-	0.72
Number of Days Δ dv >= 0.5			5	46
Number of Days Δ dv >= 1.0			1	26
Maximum Δ dv			1.32	3.76

Table E.8.27 Popo Agie Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	2.34
8	1	8	-	0.51
9	1	9	-	0.59
10	1	10	0.56	1.02
12	1	12	0.91	2.80
14	1	14	-	1.73
15	1	15	-	0.73
16	1	16	-	0.71
17	1	17	-	0.70
23	1	23	0.50	1.98
24	1	24	-	1.10
28	1	28	-	1.11
30	1	30	-	1.33
41	2	10	-	1.75
42	2	11	-	0.54
43	2	12	-	2.17
44	2	13	-	0.64
46	2	15	-	1.66
48	2	17	-	0.74
53	2	22	-	0.91
59	2	28	-	0.89
60	3	1	-	1.33
61	3	2	0.51	2.09
62	3	3	-	1.44
67	3	8	-	0.80
72	3	13	-	1.42
73	3	14	-	0.55
74	3	15	-	0.80
76	3	17	-	0.59
82	3	23	0.97	1.92
84	3	25	0.64	1.73
86	3	27	0.51	1.88
87	3	28	-	1.19
97	4	7	-	0.51
98	4	8	-	0.65
99	4	9	0.55	1.83
105	4	15	-	1.25
107	4	17	-	0.98
111	4	21	-	1.66
115	4	25	-	0.57
116	4	26	0.52	4.98
119	4	29	-	1.79
120	4	30	0.75	2.21
132	5	12	1.46	3.15
133	5	13	-	0.94
134	5	14	0.59	1.72
136	5	16	-	0.51
141	5	21	-	0.52
143	5	23	-	0.73
157	6	6	-	0.69
158	6	7	-	0.79
170	6	19	0.76	1.83
180	6	29	-	1.02
184	7	3	-	0.64

			Scenario	
Julian Day	Month	Day	1	2
237	8	25	-	1.83
249	9	6	-	1.48
252	9	9	0.80	1.90
253	9	10	-	2.03
254	9	11	-	0.52
262	9	19	-	0.85
263	9	20	0.83	4.24
264	9	21	-	2.17
265	9	22	-	4.07
271	9	28	0.57	1.87
274	10	1	-	2.34
275	10	2	-	0.68
280	10	7	-	0.93
281	10	8	-	0.81
282	10	9	-	0.57
297	10	24	-	0.62
298	10	25	-	2.21
304	10	31	-	1.38
305	11	1	0.65	2.44
306	11	2	-	3.70
312	11	8	-	0.81
313	11	9	-	0.84
314	11	10	-	1.06
317	11	13	-	0.96
320	11	16	-	0.66
322	11	18	-	0.54
323	11	19	-	0.56
325	11	21	-	0.66
326	11	22	-	1.06
329	11	25	-	0.56
337	12	3	-	0.62
339	12	5	-	0.69
342	12	8	0.54	1.40
354	12	20	0.99	2.92
355	12	21	-	2.10
356	12	22	-	1.31
357	12	23	0.75	2.43
362	12	28	-	0.73
363	12	29	0.75	2.03
Number of Days Δ dv >= 0.5			21	93
Number of Days Δ dv >= 1.0			1	50
Maximum Δ dv			1.46	4.98

Table E.8.28 Popo Agie Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	0.50	2.61
8	1	8	-	0.55
9	1	9	-	0.56
10	1	10	0.53	0.97
12	1	12	0.88	2.73
14	1	14	-	1.67
15	1	15	-	0.68
16	1	16	-	0.80
17	1	17	-	0.76
23	1	23	0.57	2.23
24	1	24	-	1.23
28	1	28	-	1.09
30	1	30	-	1.43
41	2	10	-	1.77
42	2	11	-	0.60
43	2	12	-	2.47
44	2	13	-	0.75
46	2	15	-	1.70
48	2	17	-	0.84
53	2	22	-	1.05
59	2	28	-	1.02
60	3	1	-	1.51
61	3	2	0.59	2.40
62	3	3	-	1.67
67	3	8	-	0.95
72	3	13	-	1.38
73	3	14	-	0.58
74	3	15	-	0.83
76	3	17	-	0.63
82	3	23	0.97	1.92
84	3	25	0.66	1.77
86	3	27	0.59	2.15
87	3	28	-	1.35
98	4	8	-	0.57
99	4	9	-	1.17
105	4	15	-	1.06
107	4	17	-	0.66
111	4	21	-	1.27
116	4	26	-	3.66
119	4	29	-	1.20
120	4	30	0.50	1.51
132	5	12	0.92	2.04
133	5	13	-	0.63
134	5	14	-	1.06
157	6	6	-	0.56
158	6	7	-	0.57
170	6	19	0.52	1.26
180	6	29	-	0.59
184	7	3	-	0.54
237	8	25	-	1.09
249	9	6	-	0.92
252	9	9	0.54	1.30
253	9	10	-	1.29
262	9	19	-	0.65

			Scenario	
Julian Day	Month	Day	1	2
263	9	20	-	2.43
264	9	21	-	1.30
265	9	22	-	2.75
271	9	28	-	1.27
274	10	1	-	1.40
275	10	2	-	0.74
280	10	7	-	1.03
281	10	8	-	0.87
282	10	9	-	0.54
297	10	24	-	0.65
298	10	25	-	2.14
304	10	31	-	1.40
305	11	1	0.60	2.28
306	11	2	-	3.66
311	11	7	-	0.54
312	11	8	-	0.83
313	11	9	-	0.88
314	11	10	-	0.99
317	11	13	-	0.86
320	11	16	-	0.74
322	11	18	-	0.59
323	11	19	-	0.63
325	11	21	-	0.76
326	11	22	-	1.21
329	11	25	-	0.61
337	12	3	-	0.64
339	12	5	-	0.67
342	12	8	0.56	1.44
354	12	20	1.08	3.18
355	12	21	0.55	2.33
356	12	22	-	1.46
357	12	23	0.85	2.73
359	12	25	-	0.51
362	12	28	-	0.83
363	12	29	0.85	2.26
Number of Days Δ dv >= 0.5			18	89
Number of Days Δ dv >= 1.0			1	49
Maximum Δ dv			1.08	3.66

Table E.8.29 Teton Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
16	1	16	-	0.92
25	1	25	-	1.19
26	1	26	0.62	1.90
27	1	27	1.17	3.93
28	1	28	-	1.82
40	2	9	-	1.92
44	2	13	-	0.74
74	3	15	-	0.53
75	3	16	-	1.30
83	3	24	-	0.70
111	4	21	-	1.30
120	4	30	-	0.95
122	5	2	-	1.51
125	5	5	0.68	1.70
127	5	7	0.58	1.89
128	5	8	-	0.93
131	5	11	-	0.51
163	6	12	-	2.13
173	6	22	-	0.70
180	6	29	-	1.04
194	7	13	-	0.60
197	7	16	-	1.13
202	7	21	-	0.54
205	7	24	-	0.67
235	8	23	-	1.56
236	8	24	-	1.29
238	8	26	-	1.13
239	8	27	-	0.95
247	9	4	-	2.32
248	9	5	-	1.22
252	9	9	-	2.53
261	9	18	-	0.57
263	9	20	-	1.01
264	9	21	-	0.68
271	9	28	-	0.50
272	9	29	-	1.23
280	10	7	-	0.73
351	12	17	-	1.08
353	12	19	-	1.15
354	12	20	0.56	1.83
355	12	21	-	2.02
356	12	22	-	1.14
357	12	23	-	2.83
362	12	28	-	1.81
Number of Days Δ dv >= 0.5			5	44
Number of Days Δ dv >= 1.0			1	28
Maximum Δ dv			1.17	3.93

Table E.8.30 Teton Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
16	1	16	-	0.77
25	1	25	-	1.20
26	1	26	0.52	1.87
27	1	27	0.97	3.32
28	1	28	-	1.51
40	2	9	-	1.69
44	2	13	-	0.76
75	3	16	-	1.03
83	3	24	-	0.67
111	4	21	-	1.05
120	4	30	-	0.61
122	5	2	-	1.16
125	5	5	-	1.27
127	5	7	-	1.30
128	5	8	-	0.69
163	6	12	-	1.60
173	6	22	-	0.51
180	6	29	-	0.87
197	7	16	-	0.78
235	8	23	-	0.97
236	8	24	-	0.82
238	8	26	-	0.67
239	8	27	-	0.60
247	9	4	-	1.61
248	9	5	-	0.83
252	9	9	-	1.63
263	9	20	-	0.56
272	9	29	-	0.92
280	10	7	-	0.69
351	12	17	-	1.02
353	12	19	-	1.12
354	12	20	0.51	1.68
355	12	21	-	1.88
356	12	22	-	1.08
357	12	23	-	2.62
362	12	28	-	1.81
Number of Days Δ dv >= 0.5			3	36
Number of Days Δ dv >= 1.0			0	20
Maximum Δ dv			0.97	3.32

Table E.8.31 Washakie Wilderness Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

				Scenario	
	Julian Day	Month	Day	1	2
	16	1	16	-	0.68
Number of D	26	1	26	-	1.56
Number of D	45	2	14	-	0.89
	62	3	3	0.81	3.08
	63	3	4	-	1.91
	111	4	21	-	0.60
	119	4	29	-	0.81
	120	4	30	-	1.29
	163	6	12	-	1.22
	180	6	29	-	0.61
	194	7	13	-	0.74
	237	8	25	-	0.66
	239	8	27	-	0.94
	252	9	9	-	3.79
	263	9	20	-	2.28
	264	9	21	-	1.12
	351	12	17	-	0.81
	353	12	19	-	0.81
	354	12	20	0.68	2.30
	355	12	21	-	1.82
	356	12	22	-	1.05
	357	12	23	-	2.77
	362	12	28	-	2.47
Number of Days Δ dv >= 0.5				2	23
Number of Days Δ dv >= 1.0				0	13
Maximum Δ dv				0.81	3.79

Table E.8.32 Washakie Wilderness Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
16	1	16	-	0.60
26	1	26	-	1.22
45	2	14	-	0.90
62	3	3	0.80	3.02
63	3	4	-	1.54
119	4	29	-	0.59
120	4	30	-	0.82
163	6	12	-	1.02
194	7	13	-	0.52
239	8	27	-	0.71
252	9	9	-	2.49
263	9	20	-	1.30
264	9	21	-	0.63
351	12	17	-	0.77
353	12	19	-	0.78
354	12	20	0.62	2.11
355	12	21	-	1.69
356	12	22	-	0.99
357	12	23	-	2.57
362	12	28	-	2.48
Number of Days Δ dv >= 0.5			2	20
Number of Days Δ dv >= 1.0			0	10
Maximum Δ dv			0.80	3.02

Table E.8.33 Wind River Roadless Area - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	2.29
16	1	16	-	0.93
17	1	17	-	0.69
41	2	10	-	1.49
43	2	12	-	0.60
61	3	2	-	2.04
62	3	3	-	1.30
86	3	27	-	0.57
87	3	28	-	1.03
105	4	15	-	0.54
111	4	21	-	0.61
116	4	26	-	2.35
119	4	29	-	0.51
120	4	30	-	0.89
143	5	23	-	0.86
144	5	24	-	0.52
146	5	26	-	0.60
180	6	29	-	0.88
252	9	9	-	1.21
253	9	10	-	2.03
263	9	20	1.16	6.39
264	9	21	-	2.06
265	9	22	-	1.98
274	10	1	-	2.30
306	11	2	-	0.71
325	11	21	-	0.60
353	12	19	-	0.77
354	12	20	1.01	3.04
355	12	21	-	2.03
356	12	22	-	1.48
357	12	23	0.74	2.48
362	12	28	-	0.84
363	12	29	-	1.07
Number of Days Δ dv >= 0.5			3	33
Number of Days Δ dv >= 1.0			2	17
Maximum Δ dv			1.16	6.39

Table E.8.34 Wind River Roadless Area - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	2.61
16	1	16	-	1.04
17	1	17	-	0.78
23	1	23	-	0.52
40	2	9	-	0.52
41	2	10	-	1.68
43	2	12	-	0.69
44	2	13	-	0.55
61	3	2	-	2.35
62	3	3	-	1.51
86	3	27	-	0.66
87	3	28	-	1.19
111	4	21	-	0.56
116	4	26	-	2.08
120	4	30	-	0.62
143	5	23	-	0.54
180	6	29	-	0.51
252	9	9	-	0.84
253	9	10	-	1.29
263	9	20	0.62	3.83
264	9	21	-	1.12
265	9	22	-	1.29
274	10	1	-	1.37
306	11	2	-	0.78
325	11	21	-	0.69
353	12	19	-	0.86
354	12	20	1.11	3.32
355	12	21	-	2.26
356	12	22	-	1.65
357	12	23	0.84	2.79
362	12	28	-	0.95
363	12	29	-	1.20
Number of Days Δ dv >= 0.5			3	32
Number of Days Δ dv >= 1.0			1	17
Maximum Δ dv			1.11	3.83

Table E.8.35 Yellowstone National Park - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	0.81
16	1	16	-	0.72
25	1	25	-	1.66
26	1	26	0.85	2.89
27	1	27	1.03	3.54
28	1	28	-	1.49
39	2	8	-	0.88
40	2	9	-	1.57
75	3	16	-	0.53
83	3	24	-	0.65
108	4	18	-	0.77
111	4	21	-	1.09
122	5	2	-	1.25
125	5	5	-	1.93
127	5	7	-	1.09
128	5	8	-	0.93
154	6	3	-	0.97
163	6	12	-	1.11
173	6	22	-	0.55
197	7	16	-	0.90
235	8	23	-	2.21
236	8	24	-	0.84
247	9	4	-	1.77
248	9	5	-	1.12
252	9	9	-	1.86
261	9	18	-	0.56
272	9	29	-	0.65
351	12	17	-	0.71
353	12	19	-	0.79
354	12	20	-	0.55
355	12	21	-	1.27
356	12	22	-	0.60
357	12	23	-	1.23
Number of Days Δ dv >= 0.5			2	33
Number of Days Δ dv >= 1.0			1	16
Maximum Δ dv			1.03	3.54

Table E.8.36 Yellowstone National Park - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	0.84
16	1	16	-	0.60
25	1	25	-	1.56
26	1	26	0.66	2.29
27	1	27	0.85	2.98
28	1	28	-	1.23
39	2	8	-	0.75
40	2	9	-	1.34
83	3	24	-	0.63
108	4	18	-	0.55
111	4	21	-	0.88
122	5	2	-	0.95
125	5	5	-	1.44
127	5	7	-	0.74
128	5	8	-	0.70
154	6	3	-	0.69
163	6	12	-	0.82
197	7	16	-	0.62
235	8	23	-	1.39
236	8	24	-	0.53
247	9	4	-	1.22
248	9	5	-	0.76
252	9	9	-	1.12
351	12	17	-	0.67
353	12	19	-	0.77
354	12	20	-	0.50
355	12	21	-	1.18
356	12	22	-	0.56
357	12	23	-	1.13
Number of Days Δ dv >= 0.5			2	29
Number of Days Δ dv >= 1.0			0	11
Maximum Δ dv			0.85	2.98

Table E.9.1 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Early Jonah Infill Project Development Stage Sources - MVISBK=6

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	5.91	24	6.62	24
Big Sandy	3.33	21	3.66	24
Boulder	3.06	13	3.37	18
Bronx	1.56	4	1.79	8
Cora	1.96	9	2.17	11
Daniel	2.65	13	2.93	14
Farson	4.74	31	5.18	33
Labarge	5.11	10	5.73	11
Merna	2.15	6	2.46	7
Pinedale	2.67	12	2.94	14

[1] Δdv = change in deciview.

Table E.9.2 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Early Jonah Infill Project Development Stage and Regional Sources - MVISBK=6

Receptor Area	FLAG Background Data		IMPROVE Background Data	
	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	13.31	85	14.43	79
Big Sandy	7.60	107	8.42	108
Boulder	9.83	131	10.59	130
Bronx	8.92	63	9.60	56
Cora	9.25	71	9.95	73
Daniel	11.88	88	12.68	86
Farson	9.89	77	10.85	77
Labarge	10.14	37	11.12	39
Merna	5.58	33	6.25	33
Pinedale	9.38	107	10.32	113

[1] Δdv = change in deciview.

Table E.9.3 Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Early Jonah Infill Project Development Stage Sources - MVISBK=2

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	8.34	44	8.61	34
Big Sandy	7.64	27	7.67	29
Boulder	7.70	18	7.74	20
Bronx	2.66	16	2.66	16
Cora	3.22	16	3.39	20
Daniel	4.26	20	4.48	21
Farson	7.44	47	7.64	46
Labarge	7.67	24	8.27	17
Merna	3.24	11	3.24	11
Pinedale	4.87	21	4.90	22

[1] Δdv = change in deciview.

Table E.9.4 Maximum Modeled Cumulative Visibility Impacts at Wyoming Regional Community Locations from Early Jonah Infill Project Development Stage and Regional Sources - MVISBK=2

	FLAG Background Data		IMPROVE Background Data	
Receptor Area	Maximum Visibility Impact	Number of Days > 1.0 Δdv	Maximum Visibility Impact	Number of Days > 1.0 Δdv
	(Δdv)[1]	(days)	(Δdv)[1]	(days)
Big Piney	17.65	110	18.55	105
Big Sandy	15.89	91	15.94	98
Boulder	19.09	126	19.14	123
Bronx	13.04	73	13.08	65
Cora	15.34	74	15.39	71
Daniel	17.51	96	17.56	89
Farson	13.46	95	14.12	91
Labarge	14.23	67	15.06	53
Merna	10.88	46	10.93	41
Pinedale	17.91	115	17.96	113

[1] Δdv = change in deciview.

Table E.9.5 Big Piney - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	2.31	4.00
6	1	6	3.06	13.31
7	1	7	3.98	10.96
20	1	20	-	1.16
21	1	21	-	5.69
22	1	22	-	3.43
23	1	23	1.35	4.95
24	1	24	2.83	8.17
25	1	25	3.69	4.93
27	1	27	1.65	4.30
28	1	28	-	3.90
30	1	30	-	1.42
39	2	8	2.33	4.70
40	2	9	1.21	3.62
43	2	12	2.21	3.22
44	2	13	1.24	2.21
53	2	22	-	2.67
57	2	26	-	1.18
61	3	2	5.91	10.59
62	3	3	1.66	2.69
74	3	15	1.05	3.50
75	3	16	1.41	2.58
77	3	18	-	1.01
87	3	28	-	1.46
99	4	9	-	1.56
106	4	16	-	1.64
109	4	19	-	2.63
111	4	21	-	1.46
112	4	22	-	1.85
113	4	23	-	2.04
117	4	27	-	1.61
118	4	28	1.09	3.45
119	4	29	-	2.83
122	5	2	-	1.53
123	5	3	-	1.33
124	5	4	-	1.53
125	5	5	2.05	3.11
128	5	8	-	1.55
131	5	11	-	1.55
132	5	12	-	1.75
143	5	23	-	1.14
150	5	30	-	1.11
153	6	2	-	1.85
154	6	3	-	1.04
162	6	11	-	2.62
163	6	12	-	3.07
172	6	21	-	1.51
180	6	29	-	1.12
183	7	2	-	1.13
196	7	15	-	1.58
197	7	16	-	1.56
198	7	17	-	1.10
199	7	18	-	1.08
201	7	20	-	1.33
202	7	21	-	1.03
213	8	1	-	1.15

Julian Day	Month	Day	Scenario 1	2
216	8	4	-	1.23
217	8	5	-	2.05
218	8	6	-	1.38
232	8	20	-	1.48
235	8	23	-	1.53
238	8	26	-	1.50
243	8	31	-	1.02
244	9	1	-	1.00
253	9	10	-	2.13
262	9	19	-	1.48
263	9	20	-	2.67
264	9	21	-	2.21
265	9	22	-	1.62
268	9	25	-	1.42
280	10	7	-	3.35
281	10	8	-	1.67
325	11	21	-	2.67
326	11	22	-	1.64
350	12	16	-	1.57
351	12	17	2.53	5.08
352	12	18	3.01	6.31
353	12	19	4.09	6.30
354	12	20	2.22	8.85
355	12	21	2.72	9.45
356	12	22	4.00	10.50
357	12	23	1.48	5.36
358	12	24	-	1.30
362	12	28	-	3.37
363	12	29	-	3.15
Number of Days Δ dv >= 1.0			24	85
Maximum Δ dv			5.91	13.31

Table E.9.6 Big Piney - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	2.63	4.52
6	1	6	3.48	14.43
7	1	7	4.50	11.98
20	1	20	-	1.33
21	1	21	1.04	6.36
22	1	22	-	3.89
23	1	23	1.55	5.56
24	1	24	3.21	9.03
25	1	25	4.17	5.54
27	1	27	1.89	4.85
28	1	28	-	4.41
30	1	30	-	1.64
39	2	8	2.67	5.31
40	2	9	1.40	4.11
43	2	12	2.54	3.67
44	2	13	1.44	2.54
53	2	22	-	3.05
57	2	26	-	1.36
61	3	2	6.62	11.62
62	3	3	1.92	3.08
74	3	15	1.21	3.98
75	3	16	1.62	2.95
77	3	18	-	1.17
87	3	28	-	1.68
89	3	30	-	1.10
99	4	9	-	1.42
106	4	16	-	1.50
109	4	19	-	2.40
111	4	21	-	1.33
112	4	22	-	1.69
113	4	23	-	1.86
117	4	27	-	1.46
118	4	28	-	3.16
119	4	29	-	2.59
122	5	2	-	1.39
123	5	3	-	1.21
124	5	4	-	1.39
125	5	5	1.87	2.85
128	5	8	-	1.41
131	5	11	-	1.41
132	5	12	-	1.59
143	5	23	-	1.04
150	5	30	-	1.00
153	6	2	-	1.72
162	6	11	-	2.43
163	6	12	-	2.86
172	6	21	-	1.40
180	6	29	-	1.04
196	7	15	-	1.33
197	7	16	-	1.31
201	7	20	-	1.12
216	8	4	-	1.03
217	8	5	-	1.74
218	8	6	-	1.17
232	8	20	-	1.25
235	8	23	-	1.29

			Scenario	
Julian Day	Month	Day	1	2
238	8	26	-	1.26
253	9	10	-	1.78
262	9	19	-	1.23
263	9	20	-	2.24
264	9	21	-	1.84
265	9	22	-	1.34
268	9	25	-	1.17
280	10	7	-	3.72
281	10	8	-	1.87
290	10	17	-	1.09
325	11	21	-	2.94
326	11	22	-	1.81
350	12	16	-	1.75
351	12	17	2.79	5.54
352	12	18	3.32	6.86
353	12	19	4.49	6.84
354	12	20	2.45	9.53
355	12	21	3.00	10.16
356	12	22	4.39	11.25
357	12	23	1.64	5.84
358	12	24	-	1.45
362	12	28	-	3.70
363	12	29	-	3.47
Number of Days Δ dv >= 1.0			24	79
Maximum Δ dv			6.62	14.43

Table E.9.7 Big Sandy - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
2	1	2	-	1.10
4	1	4	-	3.05
7	1	7	2.05	7.59
8	1	8	-	1.06
9	1	9	1.03	2.53
10	1	10	-	2.15
12	1	12	1.02	3.82
13	1	13	-	3.03
14	1	14	1.38	4.60
17	1	17	2.12	5.94
20	1	20	-	2.14
21	1	21	-	2.38
22	1	22	-	2.89
23	1	23	1.96	5.44
24	1	24	1.35	4.51
28	1	28	-	1.10
30	1	30	-	4.32
31	1	31	-	1.25
41	2	10	-	1.47
42	2	11	-	3.31
43	2	12	-	3.26
46	2	15	-	2.30
48	2	17	-	2.83
49	2	18	-	1.14
53	2	22	-	2.07
56	2	25	-	1.01
58	2	27	-	1.83
59	2	28	1.28	4.61
60	3	1	-	3.87
61	3	2	-	2.64
62	3	3	-	1.00
64	3	5	-	1.28
65	3	6	-	2.00
67	3	8	2.45	6.68
68	3	9	-	2.51
72	3	13	-	1.12
77	3	18	-	1.40
78	3	19	-	1.33
82	3	23	-	1.01
84	3	25	-	1.55
86	3	27	1.06	2.69
90	3	31	1.15	3.72
92	4	2	-	1.54
97	4	7	-	1.22
98	4	8	-	1.01
99	4	9	-	1.68
108	4	18	-	1.28
111	4	21	-	2.16
115	4	25	-	1.41
116	4	26	-	2.92
119	4	29	-	1.64
132	5	12	-	1.04
134	5	14	-	2.50
254	9	11	-	1.29
265	9	22	-	1.92
271	9	28	-	1.12

			Scenario	
Julian Day	Month	Day	1	2
274	10	1	-	1.33
275	10	2	-	1.78
280	10	7	-	1.13
281	10	8	-	1.73
292	10	19	-	1.30
297	10	24	-	1.17
298	10	25	-	3.53
302	10	29	-	1.29
304	10	31	-	1.37
305	11	1	2.34	4.16
307	11	3	-	1.19
308	11	4	-	1.86
309	11	5	-	1.73
310	11	6	1.04	2.92
311	11	7	-	1.56
313	11	9	-	1.89
314	11	10	-	1.16
316	11	12	-	1.35
320	11	16	-	1.86
321	11	17	-	1.14
322	11	18	-	1.10
323	11	19	-	2.36
325	11	21	-	1.69
326	11	22	-	3.37
328	11	24	-	1.18
329	11	25	-	2.95
330	11	26	-	1.07
331	11	27	-	1.75
336	12	2	-	2.24
337	12	3	-	1.54
338	12	4	-	1.56
340	12	6	-	2.14
341	12	7	-	2.26
342	12	8	2.24	5.48
344	12	10	-	3.03
345	12	11	-	2.86
346	12	12	-	2.76
347	12	13	-	1.55
348	12	14	-	1.37
349	12	15	-	3.89
350	12	16	1.06	3.09
353	12	19	-	1.55
354	12	20	3.33	7.12
355	12	21	1.34	5.38
356	12	22	2.13	5.59
357	12	23	3.00	7.56
360	12	26	-	2.09
361	12	27	-	1.74
362	12	28	2.18	4.29
363	12	29	2.65	6.56
365	12	31	-	1.82
Number of Days Δ dv >= 1.0			21	107
Maximum Δ dv			3.33	7.59

Table E.9.8 Big Sandy - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
2	1	2	-	1.26
4	1	4	1.05	3.46
7	1	7	2.35	8.42
8	1	8	-	1.22
9	1	9	1.18	2.89
10	1	10	1.12	2.46
11	1	11	-	1.02
12	1	12	1.17	4.32
13	1	13	-	3.44
14	1	14	1.59	5.17
17	1	17	2.42	6.64
20	1	20	-	2.44
21	1	21	-	2.71
22	1	22	-	3.29
23	1	23	2.24	6.09
24	1	24	1.56	5.07
28	1	28	-	1.26
30	1	30	-	4.87
31	1	31	-	1.44
41	2	10	-	1.70
42	2	11	-	3.76
43	2	12	-	3.71
46	2	15	-	2.64
47	2	16	-	1.09
48	2	17	1.05	3.23
49	2	18	-	1.32
53	2	22	-	2.37
56	2	25	-	1.17
58	2	27	-	2.11
59	2	28	1.48	5.21
60	3	1	-	4.39
61	3	2	-	3.02
62	3	3	-	1.16
64	3	5	-	1.48
65	3	6	-	2.30
67	3	8	2.80	7.46
68	3	9	-	2.87
72	3	13	-	1.29
77	3	18	-	1.61
78	3	19	-	1.53
82	3	23	-	1.16
84	3	25	-	1.78
86	3	27	1.23	3.08
87	3	28	-	1.15
90	3	31	1.33	4.22
92	4	2	-	1.41
97	4	7	-	1.11
99	4	9	-	1.53
108	4	18	-	1.16
111	4	21	-	1.97
115	4	25	-	1.28
116	4	26	-	2.67
119	4	29	-	1.50
134	5	14	-	2.28
254	9	11	-	1.07
265	9	22	-	1.60

Julian Day	Month	Day	Scenario 1	Scenario 2
274	10	1	-	1.10
275	10	2	-	1.99
280	10	7	-	1.27
281	10	8	-	1.94
292	10	19	-	1.46
297	10	24	-	1.32
298	10	25	-	3.91
299	10	26	-	1.09
302	10	29	-	1.45
304	10	31	-	1.54
305	11	1	2.61	4.61
307	11	3	-	1.32
308	11	4	-	2.06
309	11	5	-	1.92
310	11	6	1.15	3.22
311	11	7	-	1.73
313	11	9	-	2.10
314	11	10	-	1.29
316	11	12	-	1.49
320	11	16	-	2.06
321	11	17	-	1.27
322	11	18	-	1.22
323	11	19	-	2.60
325	11	21	-	1.87
326	11	22	-	3.70
328	11	24	-	1.31
329	11	25	-	3.24
330	11	26	-	1.19
331	11	27	-	1.94
336	12	2	-	2.47
337	12	3	-	1.71
338	12	4	-	1.73
340	12	6	-	2.37
341	12	7	-	2.50
342	12	8	2.48	5.97
344	12	10	-	3.34
345	12	11	-	3.15
346	12	12	-	3.05
347	12	13	-	1.73
348	12	14	-	1.52
349	12	15	-	4.27
350	12	16	1.18	3.41
353	12	19	-	1.72
354	12	20	3.66	7.71
355	12	21	1.49	5.87
356	12	22	2.36	6.10
357	12	23	3.30	8.18
360	12	26	-	2.31
361	12	27	-	1.93
362	12	28	2.41	4.70
363	12	29	2.93	7.12
365	12	31	-	2.02
Number of Days Δ dv >= 1.0			24	108
Maximum Δ dv			3.66	8.42

Table E.9.9 Boulder - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
4	1	4	-	1.42
7	1	7	2.40	9.64
8	1	8	-	2.32
9	1	9	-	2.65
10	1	10	-	1.41
11	1	11	-	2.14
12	1	12	-	4.47
13	1	13	-	3.64
14	1	14	1.22	4.99
15	1	15	-	1.56
16	1	16	-	2.99
17	1	17	-	6.20
21	1	21	-	3.65
22	1	22	-	2.38
23	1	23	-	5.21
24	1	24	1.83	8.15
26	1	26	-	1.12
30	1	30	-	3.92
40	2	9	-	2.85
41	2	10	-	1.34
43	2	12	-	1.93
44	2	13	-	1.32
45	2	14	-	2.02
46	2	15	-	2.79
47	2	16	-	1.50
48	2	17	-	2.15
49	2	18	-	3.84
53	2	22	-	2.62
56	2	25	-	1.76
58	2	27	-	2.10
59	2	28	-	2.86
60	3	1	-	2.08
61	3	2	1.61	5.09
62	3	3	-	3.04
65	3	6	-	1.79
67	3	8	-	7.98
68	3	9	-	4.76
69	3	10	1.30	2.86
72	3	13	-	2.87
73	3	14	-	2.49
74	3	15	-	1.64
77	3	18	-	2.23
78	3	19	-	1.72
81	3	22	-	1.07
84	3	25	-	1.11
86	3	27	-	2.65
87	3	28	-	1.35
89	3	30	-	3.41
90	3	31	-	3.68
92	4	2	-	2.33
96	4	6	-	1.26
97	4	7	-	2.74
98	4	8	-	1.23
99	4	9	-	2.23
110	4	20	-	1.13
111	4	21	-	1.98

			Scenario	
Julian Day	Month	Day	1	2
115	4	25	-	1.14
116	4	26	-	2.62
119	4	29	-	2.21
120	4	30	-	1.95
132	5	12	-	1.46
134	5	14	-	2.98
184	7	3	-	1.10
212	7	31	-	1.27
223	8	11	-	1.34
224	8	12	-	1.26
230	8	18	-	1.06
236	8	24	-	1.86
237	8	25	-	1.04
241	8	29	-	1.00
254	9	11	-	1.15
262	9	19	-	1.03
263	9	20	-	1.98
264	9	21	-	2.48
265	9	22	-	1.62
268	9	25	-	1.09
269	9	26	-	2.36
271	9	28	-	2.51
272	9	29	-	1.07
274	10	1	-	3.13
275	10	2	-	1.01
277	10	4	-	1.39
280	10	7	-	1.85
281	10	8	-	2.37
285	10	12	-	1.60
286	10	13	-	1.76
292	10	19	-	1.14
295	10	22	-	1.58
298	10	25	-	3.52
303	10	30	-	1.14
304	10	31	-	2.59
305	11	1	-	5.26
307	11	3	-	1.26
308	11	4	-	1.38
309	11	5	-	1.99
310	11	6	-	3.89
311	11	7	-	1.13
313	11	9	-	1.53
316	11	12	-	1.12
320	11	16	-	2.24
323	11	19	-	1.54
325	11	21	-	3.17
326	11	22	-	3.15
328	11	24	-	2.22
329	11	25	-	2.11
330	11	26	-	2.37
331	11	27	-	2.47
333	11	29	-	1.12
335	12	1	-	1.09
336	12	2	-	2.84
337	12	3	-	1.32
338	12	4	1.29	4.97
339	12	5	-	1.35
340	12	6	-	4.44
342	12	8	-	5.11

			Scenario	
Julian Day	Month	Day	1	2
344	12	10	-	4.01
345	12	11	-	4.99
346	12	12	-	2.83
347	12	13	-	2.23
348	12	14	-	1.47
349	12	15	-	2.83
350	12	16	1.07	4.60
353	12	19	2.82	6.15
354	12	20	1.90	7.75
355	12	21	1.13	6.91
356	12	22	1.47	8.88
357	12	23	3.06	9.83
358	12	24	-	1.07
361	12	27	-	2.05
362	12	28	2.51	6.25
363	12	29	-	2.42
Number of Days Δ dv >= 1.0			13	131
Maximum Δ dv			3.06	9.83

Table E.9.10 Boulder - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
4	1	4	-	1.64
7	1	7	2.73	10.59
8	1	8	-	2.64
9	1	9	-	3.02
10	1	10	-	1.62
11	1	11	1.11	2.44
12	1	12	-	5.03
13	1	13	-	4.12
14	1	14	1.40	5.60
15	1	15	-	1.79
16	1	16	-	3.39
17	1	17	-	6.92
21	1	21	-	4.13
22	1	22	-	2.72
23	1	23	-	5.84
24	1	24	2.10	9.00
26	1	26	-	1.29
30	1	30	-	4.43
31	1	31	-	1.03
40	2	9	-	3.25
41	2	10	-	1.55
43	2	12	-	2.22
44	2	13	-	1.53
45	2	14	-	2.32
46	2	15	-	3.18
47	2	16	-	1.73
48	2	17	-	2.47
49	2	18	-	4.36
53	2	22	-	2.99
56	2	25	-	2.03
58	2	27	-	2.41
59	2	28	-	3.27
60	3	1	-	2.38
61	3	2	1.85	5.73
62	3	3	1.11	3.46
63	3	4	-	1.13
65	3	6	-	2.06
67	3	8	-	8.85
68	3	9	1.13	5.38
69	3	10	1.50	3.27
71	3	12	-	1.11
72	3	13	-	3.27
73	3	14	-	2.85
74	3	15	-	1.89
77	3	18	-	2.56
78	3	19	-	1.98
80	3	21	-	1.05
81	3	22	-	1.23
84	3	25	-	1.28
86	3	27	-	3.03
87	3	28	-	1.56
89	3	30	-	3.88
90	3	31	-	4.18
92	4	2	-	2.13
96	4	6	-	1.14
97	4	7	-	2.51

			Scenario	
Julian Day	Month	Day	1	2
98	4	8	-	1.12
99	4	9	-	2.04
110	4	20	-	1.03
111	4	21	-	1.80
115	4	25	-	1.04
116	4	26	-	2.39
119	4	29	-	2.02
120	4	30	-	1.78
132	5	12	-	1.33
134	5	14	-	2.73
212	7	31	-	1.07
223	8	11	-	1.12
224	8	12	-	1.06
236	8	24	-	1.57
263	9	20	-	1.64
264	9	21	-	2.07
265	9	22	-	1.34
269	9	26	-	1.97
271	9	28	-	2.09
274	10	1	-	2.63
275	10	2	-	1.13
277	10	4	-	1.56
279	10	6	-	1.04
280	10	7	-	2.07
281	10	8	-	2.64
285	10	12	-	1.80
286	10	13	-	1.98
292	10	19	-	1.28
295	10	22	-	1.77
298	10	25	-	3.90
299	10	26	-	1.06
303	10	30	-	1.29
304	10	31	-	2.89
305	11	1	1.00	5.78
307	11	3	-	1.40
308	11	4	-	1.53
309	11	5	-	2.20
310	11	6	-	4.26
311	11	7	-	1.25
313	11	9	-	1.70
316	11	12	-	1.25
320	11	16	-	2.47
323	11	19	-	1.71
325	11	21	1.07	3.48
326	11	22	-	3.46
328	11	24	-	2.45
329	11	25	-	2.33
330	11	26	-	2.61
331	11	27	-	2.72
333	11	29	-	1.24
335	12	1	-	1.21
336	12	2	-	3.13
337	12	3	-	1.47
338	12	4	1.44	5.43
339	12	5	-	1.50
340	12	6	-	4.86
341	12	7	-	1.08
342	12	8	-	5.58
344	12	10	-	4.40

			Scenario	
Julian Day	Month	Day	1	2
345	12	11	-	5.45
346	12	12	-	3.12
347	12	13	-	2.46
348	12	14	-	1.63
349	12	15	-	3.12
350	12	16	1.19	5.04
353	12	19	3.11	6.68
354	12	20	2.11	8.38
355	12	21	1.26	7.49
356	12	22	1.63	9.56
357	12	23	3.37	10.55
358	12	24	-	1.19
361	12	27	-	2.27
362	12	28	2.77	6.79
363	12	29	-	2.68
Number of Days Δ dv >= 1.0			18	130
Maximum Δ dv			3.37	10.59

Table E.9.11 Bronx - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	2.57
7	1	7	-	1.88
11	1	11	-	1.13
12	1	12	-	1.18
14	1	14	-	1.34
24	1	24	1.56	6.80
25	1	25	-	3.74
26	1	26	1.52	4.10
27	1	27	-	3.26
39	2	8	-	2.18
40	2	9	-	3.93
43	2	12	-	1.22
44	2	13	-	3.86
45	2	14	-	1.91
61	3	2	-	3.68
62	3	3	-	4.13
63	3	4	-	3.68
74	3	15	-	2.55
75	3	16	-	1.11
87	3	28	-	2.42
99	4	9	-	1.46
104	4	14	-	1.50
106	4	16	-	1.01
107	4	17	-	1.41
109	4	19	-	1.13
110	4	20	-	2.74
116	4	26	-	1.24
118	4	28	-	1.28
119	4	29	-	1.22
120	4	30	-	1.64
127	5	7	-	1.01
131	5	11	-	1.36
184	7	3	-	1.15
187	7	6	-	1.07
205	7	24	-	1.12
218	8	6	-	1.07
234	8	22	-	1.05
235	8	23	-	1.34
237	8	25	-	1.97
238	8	26	-	1.11
239	8	27	-	1.23
241	8	29	-	1.03
246	9	3	-	1.00
252	9	9	-	1.08
254	9	11	-	1.36
263	9	20	-	4.10
264	9	21	-	1.02
268	9	25	-	1.48
269	9	26	-	2.59
271	9	28	-	1.63
280	10	7	-	2.69
281	10	8	-	1.94
285	10	12	-	1.52
325	11	21	-	3.20
326	11	22	-	1.11
350	12	16	-	3.32

			Scenario	
Julian Day	Month	Day	1	2
351	12	17	-	1.54
353	12	19	1.52	8.92
354	12	20	-	5.62
355	12	21	-	4.78
356	12	22	-	5.67
357	12	23	-	6.02
362	12	28	1.20	6.49
Number of Days Δ dv >= 1.0			4	63
Maximum Δ dv			1.56	8.92

Table E.9.12 Bronx - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	2.93
7	1	7	-	2.16
11	1	11	-	1.30
12	1	12	-	1.36
14	1	14	-	1.54
16	1	16	-	1.12
24	1	24	1.79	7.57
25	1	25	-	4.24
26	1	26	1.74	4.63
27	1	27	-	3.70
39	2	8	-	2.50
40	2	9	1.03	4.45
43	2	12	-	1.41
44	2	13	-	4.37
45	2	14	-	2.19
61	3	2	-	4.18
62	3	3	1.07	4.68
63	3	4	1.16	4.18
70	3	11	-	1.06
74	3	15	-	2.92
75	3	16	-	1.28
77	3	18	-	1.16
87	3	28	-	2.77
99	4	9	-	1.33
104	4	14	-	1.36
107	4	17	-	1.28
109	4	19	-	1.03
110	4	20	-	2.50
116	4	26	-	1.13
118	4	28	-	1.16
119	4	29	-	1.11
120	4	30	-	1.50
131	5	11	-	1.24
235	8	23	-	1.13
237	8	25	-	1.67
239	8	27	-	1.04
254	9	11	-	1.13
263	9	20	-	3.47
268	9	25	-	1.23
269	9	26	-	2.17
271	9	28	-	1.35
280	10	7	-	3.00
281	10	8	-	2.17
285	10	12	-	1.70
295	10	22	-	1.01
305	11	1	-	1.02
325	11	21	-	3.51
326	11	22	-	1.23
350	12	16	-	3.66
351	12	17	-	1.72
353	12	19	1.69	9.60
354	12	20	1.10	6.12
355	12	21	-	5.23
356	12	22	-	6.18
357	12	23	-	6.55
362	12	28	1.33	7.05
Number of Days Δ dv >= 1.0			8	56
Maximum Δ dv			1.79	9.60

Table E.9.13 Cora - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.48
7	1	7	-	3.35
9	1	9	-	1.60
10	1	10	-	1.41
11	1	11	-	3.00
12	1	12	-	1.50
13	1	13	-	1.78
14	1	14	-	2.09
15	1	15	-	1.26
16	1	16	-	1.40
24	1	24	1.66	7.44
25	1	25	-	1.67
26	1	26	1.22	3.77
27	1	27	-	2.32
39	2	8	-	1.08
40	2	9	1.00	4.09
43	2	12	-	1.26
44	2	13	-	2.95
45	2	14	-	2.68
53	2	22	-	1.12
56	2	25	-	1.27
61	3	2	1.24	4.64
62	3	3	-	3.86
63	3	4	1.02	3.21
65	3	6	-	1.50
68	3	9	-	3.57
69	3	10	-	2.70
70	3	11	-	2.01
72	3	13	-	2.25
74	3	15	-	2.22
75	3	16	-	1.02
80	3	21	-	1.00
84	3	25	-	1.19
87	3	28	-	2.67
95	4	5	-	1.42
96	4	6	-	1.31
99	4	9	-	1.47
106	4	16	-	1.11
110	4	20	-	3.03
116	4	26	-	2.24
118	4	28	-	1.35
119	4	29	-	1.29
120	4	30	-	1.70
224	8	12	-	1.45
237	8	25	-	1.54
254	9	11	-	1.66
263	9	20	-	3.70
264	9	21	-	1.97
265	9	22	-	1.84
268	9	25	-	1.38
269	9	26	-	1.80
271	9	28	-	1.60
280	10	7	-	2.12
281	10	8	-	1.65
285	10	12	-	2.50
295	10	22	-	3.15

Julian Day	Month	Day	Scenario 1	Scenario 2
305	11	1	-	4.43
320	11	16	-	1.08
325	11	21	-	4.27
326	11	22	-	1.88
338	12	4	-	1.16
340	12	6	-	1.63
346	12	12	-	1.10
347	12	13	-	1.56
350	12	16	-	4.78
353	12	19	1.96	9.25
354	12	20	1.23	6.70
355	12	21	-	4.86
356	12	22	-	6.86
357	12	23	1.05	7.36
362	12	28	1.73	7.16
Number of Days Δ dv >= 1.0			9	71
Maximum Δ dv			1.96	9.25

Table E.9.14 Cora - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.70
7	1	7	-	3.80
9	1	9	-	1.83
10	1	10	-	1.62
11	1	11	-	3.41
12	1	12	-	1.72
13	1	13	-	2.04
14	1	14	-	2.39
15	1	15	-	1.45
16	1	16	-	1.61
24	1	24	1.90	8.26
25	1	25	-	1.91
26	1	26	1.40	4.26
27	1	27	-	2.64
39	2	8	-	1.25
40	2	9	1.16	4.63
43	2	12	-	1.45
44	2	13	-	3.36
45	2	14	-	3.06
53	2	22	-	1.29
56	2	25	-	1.46
61	3	2	1.43	5.24
62	3	3	1.13	4.38
63	3	4	1.18	3.66
65	3	6	-	1.73
68	3	9	-	4.06
69	3	10	-	3.09
70	3	11	-	2.31
72	3	13	-	2.58
74	3	15	-	2.55
75	3	16	-	1.18
80	3	21	-	1.16
84	3	25	-	1.37
87	3	28	-	3.05
95	4	5	-	1.29
96	4	6	-	1.19
99	4	9	-	1.34
106	4	16	-	1.01
110	4	20	-	2.77
116	4	26	-	2.05
118	4	28	-	1.23
119	4	29	-	1.17
120	4	30	-	1.55
224	8	12	-	1.22
237	8	25	-	1.29
254	9	11	-	1.37
263	9	20	-	3.12
264	9	21	-	1.64
265	9	22	-	1.53
268	9	25	-	1.14
269	9	26	-	1.49
271	9	28	-	1.32
280	10	7	-	2.37
281	10	8	-	1.85
285	10	12	-	2.79
295	10	22	-	3.50

			Scenario	
Julian Day	Month	Day	1	2
305	11	1	-	4.89
320	11	16	-	1.19
325	11	21	1.06	4.67
326	11	22	-	2.07
336	12	2	-	1.07
338	12	4	-	1.30
340	12	6	-	1.80
346	12	12	-	1.22
347	12	13	-	1.74
350	12	16	-	5.23
353	12	19	2.17	9.95
354	12	20	1.37	7.27
355	12	21	-	5.31
356	12	22	-	7.43
357	12	23	1.17	7.96
362	12	28	1.92	7.75
363	12	29	-	1.02
Number of Days Δ dv >= 1.0			11	73
Maximum Δ dv			2.17	9.95

Table E.9.15 Daniel - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	4.50
6	1	6	-	2.11
7	1	7	-	5.21
21	1	21	-	2.05
23	1	23	-	1.50
24	1	24	2.20	9.19
25	1	25	1.18	5.79
26	1	26	1.63	4.37
27	1	27	1.19	4.90
39	2	8	-	4.32
40	2	9	1.20	4.73
43	2	12	-	2.27
44	2	13	-	4.05
45	2	14	-	1.60
53	2	22	-	2.88
56	2	25	-	2.93
61	3	2	1.36	8.52
62	3	3	1.42	6.02
63	3	4	1.12	5.22
68	3	9	-	1.85
70	3	11	-	1.12
74	3	15	-	5.27
75	3	16	-	2.11
76	3	17	-	1.32
77	3	18	-	1.68
80	3	21	-	1.79
83	3	24	-	1.20
87	3	28	-	3.38
96	4	6	-	1.73
97	4	7	-	1.19
98	4	8	-	1.17
99	4	9	-	2.68
103	4	13	-	1.03
104	4	14	-	2.44
106	4	16	-	2.09
107	4	17	-	2.88
109	4	19	-	2.59
110	4	20	-	3.40
116	4	26	-	4.16
117	4	27	-	1.09
118	4	28	-	2.76
119	4	29	-	2.91
120	4	30	-	2.03
122	5	2	-	1.11
125	5	5	-	1.72
127	5	7	-	1.36
131	5	11	-	2.28
136	5	16	-	1.22
147	5	27	-	1.43
163	6	12	-	1.09
166	6	15	-	1.94
169	6	18	-	1.25
170	6	19	-	2.44
205	7	24	-	1.28
214	8	2	-	1.08
217	8	5	-	1.25

			Scenario	
Julian Day	Month	Day	1	2
237	8	25	-	2.19
245	9	2	-	1.15
246	9	3	-	1.35
252	9	9	-	1.25
254	9	11	-	2.23
262	9	19	-	1.04
263	9	20	-	5.28
264	9	21	-	3.24
265	9	22	-	1.20
268	9	25	-	2.15
269	9	26	-	3.14
270	9	27	-	1.44
271	9	28	-	3.37
272	9	29	-	1.48
280	10	7	-	5.22
281	10	8	-	3.84
285	10	12	-	2.17
290	10	17	-	1.74
295	10	22	-	1.96
320	11	16	-	2.75
325	11	21	1.20	7.36
326	11	22	-	2.23
350	12	16	-	4.52
351	12	17	-	3.36
352	12	18	-	3.16
353	12	19	2.65	11.88
354	12	20	1.33	9.05
355	12	21	-	7.92
356	12	22	-	8.06
357	12	23	1.15	9.26
362	12	28	1.30	9.68
363	12	29	-	1.31
Number of Days Δ dv >= 1.0			13	88
Maximum Δ dv			2.65	11.88

Table E.9.16 Daniel - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	5.07
6	1	6	-	2.41
7	1	7	-	5.84
14	1	14	-	1.10
21	1	21	-	2.35
23	1	23	-	1.72
24	1	24	2.51	10.11
25	1	25	1.36	6.47
26	1	26	1.87	4.93
27	1	27	1.37	5.51
39	2	8	-	4.88
40	2	9	1.38	5.33
43	2	12	-	2.60
44	2	13	-	4.59
45	2	14	-	1.84
53	2	22	-	3.29
56	2	25	-	3.35
61	3	2	1.57	9.43
62	3	3	1.64	6.74
63	3	4	1.29	5.88
68	3	9	-	2.12
69	3	10	-	1.04
70	3	11	-	1.29
74	3	15	-	5.93
75	3	16	-	2.42
76	3	17	-	1.52
77	3	18	-	1.94
80	3	21	-	2.07
82	3	23	-	1.11
83	3	24	-	1.39
87	3	28	-	3.84
96	4	6	-	1.58
97	4	7	-	1.08
98	4	8	-	1.06
99	4	9	-	2.45
104	4	14	-	2.23
106	4	16	-	1.90
107	4	17	-	2.64
109	4	19	-	2.37
110	4	20	-	3.12
116	4	26	-	3.83
118	4	28	-	2.53
119	4	29	-	2.67
120	4	30	-	1.85
122	5	2	-	1.00
125	5	5	-	1.56
127	5	7	-	1.24
131	5	11	-	2.08
136	5	16	-	1.11
147	5	27	-	1.30
163	6	12	-	1.01
166	6	15	-	1.80
169	6	18	-	1.15
170	6	19	-	2.27
205	7	24	-	1.08
217	8	5	-	1.05

			Scenario	
Julian Day	Month	Day	1	2
237	8	25	-	1.86
246	9	3	-	1.12
252	9	9	-	1.03
254	9	11	-	1.86
263	9	20	-	4.50
264	9	21	-	2.72
268	9	25	-	1.79
269	9	26	-	2.63
270	9	27	-	1.19
271	9	28	-	2.83
272	9	29	-	1.22
280	10	7	-	5.74
281	10	8	-	4.26
285	10	12	-	2.43
289	10	16	-	1.03
290	10	17	-	1.95
295	10	22	-	2.19
320	11	16	-	3.03
325	11	21	1.33	7.95
326	11	22	-	2.47
350	12	16	-	4.94
351	12	17	-	3.70
352	12	18	-	3.48
353	12	19	2.93	12.68
354	12	20	1.48	9.74
355	12	21	-	8.56
356	12	22	1.09	8.70
357	12	23	1.28	9.96
362	12	28	1.45	10.40
363	12	29	-	1.46
Number of Days Δ dv >= 1.0			14	86
Maximum Δ dv			2.93	12.68

Table E.9.17 Farson - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
3	1	3	-	3.37
4	1	4	-	1.23
7	1	7	-	2.64
17	1	17	-	1.47
21	1	21	-	1.17
22	1	22	4.27	9.89
23	1	23	1.98	5.59
24	1	24	-	1.20
28	1	28	1.72	5.36
29	1	29	-	1.56
30	1	30	1.84	4.63
41	2	10	1.92	3.82
43	2	12	-	1.53
46	2	15	-	2.14
52	2	21	-	1.14
53	2	22	1.61	3.23
54	2	23	2.35	5.20
55	2	24	-	1.99
57	2	26	2.93	5.78
59	2	28	-	1.35
60	3	1	-	1.53
76	3	17	1.45	4.79
86	3	27	-	1.63
90	3	31	-	1.93
92	4	2	-	2.49
94	4	4	-	1.02
96	4	6	-	1.66
97	4	7	-	1.19
115	4	25	-	1.11
119	4	29	1.12	2.55
120	4	30	-	2.42
123	5	3	-	1.88
128	5	8	-	1.54
133	5	13	-	1.91
137	5	17	-	2.32
139	5	19	1.31	2.79
140	5	20	1.53	3.82
142	5	22	1.34	2.77
147	5	27	-	1.46
148	5	28	1.19	2.26
157	6	6	-	1.36
184	7	3	-	1.43
188	7	7	1.08	2.09
231	8	19	-	1.38
256	9	13	-	1.28
267	9	24	-	1.32
274	10	1	-	2.82
275	10	2	-	1.21
276	10	3	2.36	5.60
279	10	6	-	1.54
282	10	9	-	2.60
283	10	10	-	1.91
284	10	11	2.51	4.63
289	10	16	-	2.46
290	10	17	-	2.33
291	10	18	1.35	3.85

Julian Day	Month	Day	Scenario 1	Scenario 2
297	10	24	-	1.80
309	11	5	-	1.80
321	11	17	1.04	2.50
322	11	18	1.24	2.85
323	11	19	-	1.08
324	11	20	1.01	3.32
325	11	21	-	1.92
326	11	22	1.08	2.15
327	11	23	-	1.18
332	11	28	1.29	4.01
354	12	20	2.12	4.45
355	12	21	4.74	9.29
356	12	22	1.07	3.38
357	12	23	1.06	3.10
358	12	24	1.96	4.27
359	12	25	1.16	3.52
360	12	26	1.35	3.52
361	12	27	-	1.12
362	12	28	-	1.09
363	12	29	1.38	4.15
364	12	30	-	1.90
Number of Days Δ dv >= 1.0			31	77
Maximum Δ dv			4.74	9.89

Table E.9.18 Farson - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
3	1	3	1.11	3.82
4	1	4	-	1.41
7	1	7	-	3.00
17	1	17	-	1.69
21	1	21	-	1.35
22	1	22	4.82	10.85
23	1	23	2.27	6.26
24	1	24	-	1.38
28	1	28	1.97	6.00
29	1	29	-	1.79
30	1	30	2.11	5.21
41	2	10	2.21	4.33
43	2	12	-	1.76
46	2	15	-	2.46
52	2	21	-	1.32
53	2	22	1.86	3.68
54	2	23	2.69	5.86
55	2	24	-	2.28
57	2	26	3.34	6.48
59	2	28	-	1.56
60	3	1	-	1.76
76	3	17	1.67	5.41
78	3	19	-	1.11
86	3	27	-	1.88
90	3	31	-	2.21
92	4	2	-	2.27
96	4	6	-	1.51
97	4	7	-	1.08
115	4	25	-	1.01
119	4	29	1.02	2.33
120	4	30	-	2.21
123	5	3	-	1.72
128	5	8	-	1.40
133	5	13	-	1.75
137	5	17	-	2.12
139	5	19	1.19	2.55
140	5	20	1.39	3.51
142	5	22	1.22	2.54
147	5	27	-	1.33
148	5	28	1.08	2.06
157	6	6	-	1.26
184	7	3	-	1.20
188	7	7	-	1.77
231	8	19	-	1.16
256	9	13	-	1.06
267	9	24	-	1.09
274	10	1	-	2.36
275	10	2	-	1.36
276	10	3	2.64	6.15
279	10	6	-	1.73
282	10	9	-	2.89
283	10	10	1.02	2.14
284	10	11	2.79	5.11
289	10	16	-	2.74
290	10	17	1.00	2.60
291	10	18	1.51	4.26

			Scenario	
Julian Day	Month	Day	1	2
297	10	24	-	2.02
309	11	5	-	2.00
321	11	17	1.15	2.76
322	11	18	1.38	3.14
323	11	19	-	1.20
324	11	20	1.12	3.64
325	11	21	-	2.13
326	11	22	1.20	2.37
327	11	23	-	1.31
332	11	28	1.43	4.39
354	12	20	2.34	4.87
355	12	21	5.18	9.99
356	12	22	1.20	3.71
357	12	23	1.18	3.41
358	12	24	2.17	4.68
359	12	25	1.29	3.87
360	12	26	1.50	3.87
361	12	27	-	1.24
362	12	28	-	1.21
363	12	29	1.54	4.55
364	12	30	-	2.11
Number of Days Δ dv >= 1.0			33	77
Maximum Δ dv			5.18	10.85

Table E.9.19 La Barge - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
6	1	6	5.11	10.14
7	1	7	1.95	5.64
21	1	21	-	2.56
22	1	22	-	3.19
23	1	23	3.07	9.37
24	1	24	-	2.66
28	1	28	1.87	4.34
30	1	30	-	2.42
39	2	8	-	1.90
40	2	9	-	1.16
53	2	22	-	1.28
61	3	2	-	1.29
87	3	28	-	1.04
89	3	30	-	1.02
109	4	19	-	1.70
112	4	22	-	1.66
118	4	28	-	1.23
124	5	4	-	1.46
150	5	30	-	1.03
160	6	9	1.29	1.39
162	6	11	-	2.09
163	6	12	-	1.18
180	6	29	1.30	1.62
201	7	20	-	1.59
202	7	21	-	1.05
213	8	1	-	1.56
216	8	4	-	1.28
262	9	19	-	1.47
264	9	21	-	2.95
273	9	30	-	2.55
325	11	21	-	1.45
352	12	18	1.37	2.49
354	12	20	2.09	4.81
355	12	21	3.17	8.44
356	12	22	2.69	6.72
357	12	23	-	1.88
363	12	29	-	2.24
Number of Days Δ dv >= 1.0			10	37
Maximum Δ dv			5.11	10.14

Table E.9.20 La Barge - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
2	1	2	-	1.01
6	1	6	5.73	11.12
7	1	7	2.24	6.31
21	1	21	-	2.92
22	1	22	-	3.62
23	1	23	3.48	10.31
24	1	24	1.15	3.04
25	1	25	-	1.12
28	1	28	2.14	4.89
30	1	30	-	2.76
39	2	8	-	2.19
40	2	9	-	1.35
53	2	22	-	1.48
61	3	2	-	1.49
87	3	28	-	1.20
89	3	30	-	1.18
109	4	19	-	1.55
112	4	22	-	1.51
118	4	28	-	1.12
124	5	4	-	1.33
160	6	9	1.19	1.29
162	6	11	-	1.93
163	6	12	-	1.10
180	6	29	1.21	1.51
201	7	20	-	1.34
213	8	1	-	1.32
216	8	4	-	1.08
262	9	19	-	1.22
264	9	21	-	2.47
273	9	30	-	2.13
280	10	7	-	1.01
281	10	8	-	1.10
325	11	21	-	1.60
352	12	18	1.52	2.75
354	12	20	2.31	5.26
355	12	21	3.49	9.10
356	12	22	2.97	7.29
357	12	23	-	2.08
363	12	29	-	2.48
Number of Days Δ dv >= 1.0			11	39
Maximum Δ dv			5.73	11.12

Table E.9.21 Merna - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	1.55	5.25
6	1	6	-	2.41
7	1	7	-	1.12
24	1	24	1.30	4.92
25	1	25	2.15	5.58
26	1	26	-	1.86
27	1	27	1.15	3.02
39	2	8	-	2.37
40	2	9	-	2.59
44	2	13	-	4.27
61	3	2	-	2.83
62	3	3	-	3.24
74	3	15	-	1.05
75	3	16	-	1.19
87	3	28	1.03	3.31
106	4	16	-	1.60
107	4	17	-	2.52
109	4	19	-	1.81
110	4	20	-	1.44
118	4	28	-	1.88
125	5	5	-	1.86
263	9	20	-	3.23
269	9	26	-	1.64
270	9	27	-	1.29
325	11	21	-	1.20
351	12	17	-	2.20
352	12	18	-	1.04
353	12	19	1.29	5.44
354	12	20	-	4.41
355	12	21	-	4.79
356	12	22	-	5.24
357	12	23	-	4.36
362	12	28	-	2.61
Number of Days Δ dv >= 1.0			6	33
Maximum Δ dv			2.15	5.58

Table E.9.22 Merna - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	1.78	5.89
6	1	6	-	2.75
7	1	7	-	1.29
24	1	24	1.50	5.53
25	1	25	2.46	6.24
26	1	26	-	2.13
27	1	27	1.33	3.43
39	2	8	-	2.72
40	2	9	-	2.96
44	2	13	1.07	4.84
61	3	2	-	3.23
62	3	3	-	3.69
74	3	15	-	1.22
75	3	16	-	1.38
87	3	28	1.19	3.77
106	4	16	-	1.46
107	4	17	-	2.30
109	4	19	-	1.65
110	4	20	-	1.31
118	4	28	-	1.71
125	5	5	-	1.70
263	9	20	-	2.71
269	9	26	-	1.36
270	9	27	-	1.06
325	11	21	-	1.33
351	12	17	-	2.44
352	12	18	-	1.16
353	12	19	1.44	5.93
354	12	20	-	4.83
355	12	21	-	5.23
356	12	22	-	5.72
357	12	23	-	4.77
362	12	28	-	2.88
Number of Days Δ dv >= 1.0			7	33
Maximum Δ dv			2.46	6.24

Table E.9.23 Pinedale - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.26
7	1	7	1.22	5.96
8	1	8	-	1.44
9	1	9	-	2.89
10	1	10	-	2.33
11	1	11	-	3.38
12	1	12	-	1.68
13	1	13	-	3.17
14	1	14	-	3.31
15	1	15	-	2.66
16	1	16	-	2.57
21	1	21	-	2.12
23	1	23	-	2.59
24	1	24	1.84	9.38
26	1	26	1.07	3.07
27	1	27	-	1.78
30	1	30	-	1.33
39	2	8	-	1.09
40	2	9	-	4.50
43	2	12	-	2.61
44	2	13	-	2.94
45	2	14	-	3.20
46	2	15	-	2.25
49	2	18	-	1.83
53	2	22	-	2.37
56	2	25	-	1.96
60	3	1	-	1.09
61	3	2	1.65	5.39
62	3	3	1.04	3.82
63	3	4	-	2.42
65	3	6	-	2.03
67	3	8	-	2.37
68	3	9	1.62	4.63
69	3	10	1.90	4.27
70	3	11	-	1.25
71	3	12	-	1.18
72	3	13	-	2.73
73	3	14	-	2.39
74	3	15	-	2.44
75	3	16	-	1.15
78	3	19	-	1.39
80	3	21	-	1.28
81	3	22	-	1.13
86	3	27	-	1.07
87	3	28	-	2.73
92	4	2	-	1.14
93	4	3	-	1.01
96	4	6	-	1.45
97	4	7	-	1.72
99	4	9	-	1.70
110	4	20	-	2.59
111	4	21	-	1.22
115	4	25	-	1.29
116	4	26	-	3.01
118	4	28	-	1.35
119	4	29	-	1.61

			Scenario	
Julian Day	Month	Day	1	2
120	4	30	-	2.45
132	5	12	-	1.16
170	6	19	-	1.14
224	8	12	-	1.97
236	8	24	-	1.58
237	8	25	-	1.50
252	9	9	-	1.02
254	9	11	-	1.48
262	9	19	-	1.27
263	9	20	-	4.37
264	9	21	-	3.68
265	9	22	-	2.07
268	9	25	-	1.63
269	9	26	-	2.06
271	9	28	-	1.88
277	10	4	-	1.05
279	10	6	-	1.44
280	10	7	-	2.19
281	10	8	-	2.16
285	10	12	-	2.50
286	10	13	-	1.45
290	10	17	-	1.06
295	10	22	-	2.95
305	11	1	-	5.43
310	11	6	-	2.64
311	11	7	-	1.20
312	11	8	-	1.01
320	11	16	-	1.87
325	11	21	1.04	3.98
326	11	22	-	2.32
328	11	24	-	1.68
330	11	26	-	1.50
331	11	27	-	1.82
336	12	2	-	2.36
338	12	4	-	2.97
339	12	5	-	1.08
340	12	6	-	2.94
342	12	8	-	3.46
344	12	10	-	1.78
345	12	11	-	4.16
346	12	12	-	1.89
347	12	13	-	2.50
350	12	16	-	5.19
353	12	19	2.66	8.45
354	12	20	1.56	8.08
355	12	21	-	5.48
356	12	22	-	8.63
357	12	23	1.79	9.04
358	12	24	-	1.03
362	12	28	2.24	6.97
363	12	29	-	1.32
Number of Days Δ dv >= 1.0			12	107
Maximum Δ dv			2.66	9.38

Table E.9.24 Pinedale - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=6

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.45
6	1	6	-	1.10
7	1	7	1.41	6.66
8	1	8	-	1.65
9	1	9	-	3.29
10	1	10	-	2.66
11	1	11	-	3.83
12	1	12	-	1.93
13	1	13	-	3.60
14	1	14	-	3.75
15	1	15	-	3.04
16	1	16	-	2.93
21	1	21	-	2.42
22	1	22	-	1.13
23	1	23	-	2.95
24	1	24	2.11	10.32
25	1	25	-	1.14
26	1	26	1.23	3.48
27	1	27	-	2.04
30	1	30	-	1.53
39	2	8	-	1.26
40	2	9	1.10	5.09
43	2	12	-	2.98
44	2	13	-	3.36
45	2	14	-	3.64
46	2	15	-	2.58
49	2	18	-	2.10
53	2	22	-	2.72
56	2	25	-	2.25
58	2	27	-	1.14
60	3	1	-	1.26
61	3	2	1.91	6.06
62	3	3	1.21	4.33
63	3	4	-	2.77
65	3	6	-	2.33
67	3	8	-	2.71
68	3	9	1.86	5.23
69	3	10	2.18	4.84
70	3	11	-	1.45
71	3	12	-	1.36
72	3	13	-	3.13
73	3	14	-	2.73
74	3	15	-	2.79
75	3	16	-	1.33
78	3	19	-	1.60
80	3	21	-	1.48
81	3	22	-	1.31
84	3	25	-	1.01
86	3	27	-	1.24
87	3	28	-	3.12
92	4	2	-	1.04
96	4	6	-	1.32
97	4	7	-	1.57
99	4	9	-	1.55
110	4	20	-	2.37
111	4	21	-	1.11

			Scenario	
Julian Day	Month	Day	1	2
115	4	25	-	1.17
116	4	26	-	2.76
118	4	28	-	1.23
119	4	29	-	1.47
120	4	30	-	2.24
132	5	12	-	1.06
170	6	19	-	1.06
224	8	12	-	1.67
236	8	24	-	1.33
237	8	25	-	1.26
254	9	11	-	1.23
262	9	19	-	1.05
263	9	20	-	3.70
264	9	21	-	3.10
265	9	22	-	1.72
268	9	25	-	1.35
269	9	26	-	1.71
271	9	28	-	1.56
277	10	4	-	1.18
279	10	6	-	1.62
280	10	7	-	2.45
281	10	8	-	2.41
285	10	12	-	2.79
286	10	13	-	1.62
290	10	17	-	1.20
295	10	22	-	3.29
305	11	1	-	5.97
310	11	6	-	2.90
311	11	7	-	1.33
312	11	8	-	1.12
314	11	10	-	1.09
320	11	16	-	2.07
321	11	17	-	1.02
325	11	21	1.15	4.35
326	11	22	-	2.56
328	11	24	-	1.86
330	11	26	-	1.66
331	11	27	-	2.01
335	12	1	-	1.01
336	12	2	-	2.61
338	12	4	-	3.27
339	12	5	-	1.21
340	12	6	-	3.25
342	12	8	-	3.81
344	12	10	-	1.98
345	12	11	-	4.57
346	12	12	-	2.10
347	12	13	-	2.77
350	12	16	-	5.66
353	12	19	2.94	9.12
354	12	20	1.73	8.72
355	12	21	-	5.98
356	12	22	1.01	9.30
357	12	23	1.98	9.73
358	12	24	-	1.15
362	12	28	2.47	7.56
363	12	29	-	1.47
Number of Days Δ dv >= 1.0			14	113
Maximum Δ dv			2.94	10.32

Table E.9.25 Big Piney - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	1.33	2.25
6	1	6	4.76	17.65
7	1	7	6.68	16.10
14	1	14	-	1.04
17	1	17	-	1.50
20	1	20	-	3.12
21	1	21	1.56	9.09
22	1	22	-	1.98
23	1	23	-	2.55
24	1	24	1.46	4.57
25	1	25	2.25	3.02
26	1	26	1.05	1.32
27	1	27	5.79	12.23
28	1	28	2.58	11.83
31	1	31	-	1.21
39	2	8	2.31	3.88
40	2	9	2.65	7.98
41	2	10	-	1.78
43	2	12	2.69	3.92
44	2	13	1.47	2.63
46	2	15	-	1.04
53	2	22	-	1.58
61	3	2	6.24	10.99
62	3	3	2.29	3.61
73	3	14	-	1.68
74	3	15	3.74	10.22
75	3	16	2.06	4.00
87	3	28	-	1.13
89	3	30	-	1.05
97	4	7	-	1.04
98	4	8	-	1.66
99	4	9	1.83	6.37
106	4	16	-	1.77
107	4	17	-	1.23
108	4	18	-	3.31
109	4	19	-	3.40
110	4	20	1.26	1.99
111	4	21	-	2.58
112	4	22	-	5.39
113	4	23	2.34	7.37
117	4	27	1.72	4.77
118	4	28	2.56	6.32
119	4	29	1.46	8.12
120	4	30	-	3.43
122	5	2	1.88	5.42
123	5	3	1.44	6.28
124	5	4	1.10	3.87
125	5	5	7.83	11.00
127	5	7	1.03	1.66
128	5	8	-	2.22
131	5	11	3.59	5.57
132	5	12	-	6.55
133	5	13	-	1.69
134	5	14	-	2.04
135	5	15	-	2.54
141	5	21	-	1.11

Julian Day	Month	Day	Scenario 1	2
143	5	23	-	2.94
146	5	26	2.15	3.11
147	5	27	1.35	4.04
148	5	28	-	3.28
149	5	29	-	2.28
150	5	30	-	2.40
153	6	2	-	1.80
154	6	3	-	1.44
155	6	4	-	1.99
156	6	5	1.16	3.59
161	6	10	-	2.09
162	6	11	1.26	8.28
163	6	12	-	5.45
170	6	19	-	2.74
172	6	21	-	2.16
180	6	29	-	1.62
183	7	2	-	1.28
184	7	3	-	1.06
196	7	15	-	1.56
197	7	16	-	1.62
201	7	20	-	3.04
202	7	21	-	2.80
205	7	24	-	1.38
217	8	5	-	1.64
218	8	6	-	1.13
232	8	20	-	1.12
235	8	23	1.54	2.50
237	8	25	-	1.34
238	8	26	-	1.37
247	9	4	-	1.28
253	9	10	-	1.68
262	9	19	-	1.48
263	9	20	1.17	3.19
264	9	21	-	2.18
265	9	22	1.56	5.76
268	9	25	1.08	5.99
273	9	30	-	3.09
274	10	1	-	1.33
280	10	7	-	2.96
281	10	8	-	1.67
305	11	1	-	1.37
325	11	21	-	1.30
326	11	22	-	1.04
342	12	8	-	1.43
350	12	16	-	1.65
351	12	17	1.92	4.21
352	12	18	3.96	7.97
353	12	19	8.34	11.41
354	12	20	2.00	7.83
355	12	21	2.62	8.94
356	12	22	3.16	8.43
357	12	23	1.31	4.83
362	12	28	-	3.80
363	12	29	-	3.32
Number of Days Δ dv >= 1.0			44	110
Maximum Δ dv			8.34	17.65

Table E.9.26 Big Piney - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	1.59	2.66
6	1	6	5.18	18.55
7	1	7	7.16	16.88
14	1	14	-	1.02
17	1	17	-	1.58
20	1	20	-	3.15
21	1	21	1.71	9.66
22	1	22	-	2.33
23	1	23	-	3.01
24	1	24	1.74	5.30
25	1	25	2.64	3.52
26	1	26	1.09	1.38
27	1	27	5.65	12.01
28	1	28	2.57	11.82
30	1	30	-	1.15
31	1	31	-	1.27
39	2	8	2.50	4.16
40	2	9	2.75	8.23
41	2	10	-	1.74
43	2	12	2.99	4.32
44	2	13	1.68	2.98
46	2	15	-	1.08
53	2	22	-	1.87
61	3	2	6.97	12.02
62	3	3	2.60	4.07
73	3	14	-	1.59
74	3	15	3.62	9.98
75	3	16	2.11	4.09
87	3	28	-	1.31
88	3	29	-	1.03
89	3	30	-	1.21
98	4	8	-	1.37
99	4	9	1.12	4.22
106	4	16	-	1.56
108	4	18	-	2.13
109	4	19	-	2.92
110	4	20	-	1.20
111	4	21	-	1.80
112	4	22	-	4.63
113	4	23	1.51	5.16
117	4	27	1.29	3.70
118	4	28	2.17	5.50
119	4	29	-	5.83
120	4	30	-	2.13
122	5	2	1.13	3.47
123	5	3	1.03	4.79
124	5	4	-	2.60
125	5	5	5.93	8.61
127	5	7	-	1.04
128	5	8	-	1.95
131	5	11	2.23	3.59
132	5	12	-	4.25
133	5	13	-	1.05
134	5	14	-	1.20
135	5	15	-	1.56
143	5	23	-	1.92

			Scenario	
Julian Day	Month	Day	1	2
146	5	26	1.27	1.86
147	5	27	-	2.49
148	5	28	-	1.98
149	5	29	-	1.39
150	5	30	-	1.99
153	6	2	-	1.68
154	6	3	-	1.20
155	6	4	-	1.21
156	6	5	-	2.42
161	6	10	-	1.23
162	6	11	-	5.77
163	6	12	-	4.92
170	6	19	-	1.87
172	6	21	-	1.99
180	6	29	-	1.33
183	7	2	-	1.07
196	7	15	-	1.33
197	7	16	-	1.37
201	7	20	-	2.50
202	7	21	-	2.11
205	7	24	-	1.11
217	8	5	-	1.42
235	8	23	1.24	2.01
238	8	26	-	1.17
247	9	4	-	1.00
253	9	10	-	1.45
262	9	19	-	1.23
263	9	20	-	2.61
264	9	21	-	1.80
265	9	22	-	3.93
268	9	25	-	3.99
273	9	30	-	1.95
280	10	7	-	3.34
281	10	8	-	1.75
305	11	1	-	1.23
325	11	21	-	1.50
326	11	22	-	1.16
342	12	8	-	1.30
350	12	16	-	1.82
351	12	17	2.01	4.38
352	12	18	4.21	8.38
353	12	19	8.61	11.73
354	12	20	2.17	8.35
355	12	21	2.93	9.70
356	12	22	3.56	9.25
357	12	23	1.49	5.37
358	12	24	-	1.06
362	12	28	-	4.16
363	12	29	-	3.65
Number of Days Δ dv >= 1.0			34	105
Maximum Δ dv			8.61	18.55

Table E.9.27 Big Sandy - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
4	1	4	-	2.02
7	1	7	2.25	8.28
8	1	8	-	1.50
9	1	9	1.95	5.02
10	1	10	2.09	4.44
11	1	11	-	2.19
12	1	12	1.22	4.09
13	1	13	1.34	3.99
14	1	14	3.07	7.27
15	1	15	-	1.43
17	1	17	1.73	4.91
20	1	20	-	2.27
21	1	21	-	1.76
22	1	22	-	1.71
23	1	23	1.26	3.60
24	1	24	-	2.51
30	1	30	-	4.02
31	1	31	-	2.58
41	2	10	-	1.93
42	2	11	-	3.41
43	2	12	-	3.83
46	2	15	1.31	3.74
48	2	17	-	2.57
50	2	19	-	1.35
53	2	22	-	1.40
58	2	27	-	3.32
59	2	28	3.22	11.61
60	3	1	1.20	5.48
61	3	2	-	2.56
63	3	4	-	1.62
64	3	5	-	1.69
65	3	6	-	2.33
67	3	8	2.02	5.63
68	3	9	-	1.80
72	3	13	-	1.73
78	3	19	-	1.19
84	3	25	-	2.00
86	3	27	-	1.95
90	3	31	-	2.82
97	4	7	-	1.08
99	4	9	2.08	4.92
111	4	21	-	1.77
115	4	25	-	1.05
116	4	26	-	2.91
119	4	29	-	1.48
120	4	30	-	2.65
132	5	12	-	1.57
133	5	13	-	1.35
134	5	14	1.46	3.99
224	8	12	-	1.10
236	8	24	1.11	3.36
254	9	11	-	1.08
264	9	21	-	1.03
265	9	22	-	1.40
274	10	1	-	1.19
275	10	2	-	1.22

			Scenario	
Julian Day	Month	Day	1	2
276	10	3	-	1.29
281	10	8	-	1.00
298	10	25	-	2.09
304	10	31	-	4.61
305	11	1	1.76	3.41
308	11	4	-	1.00
310	11	6	-	1.90
311	11	7	-	1.14
313	11	9	-	1.14
323	11	19	-	1.17
326	11	22	-	1.71
329	11	25	-	1.63
331	11	27	-	1.29
336	12	2	-	1.46
340	12	6	-	1.27
341	12	7	-	1.79
342	12	8	1.34	3.36
344	12	10	-	2.45
345	12	11	-	6.64
346	12	12	1.61	5.17
347	12	13	1.62	3.08
348	12	14	-	3.31
349	12	15	-	5.73
350	12	16	1.25	3.88
353	12	19	1.33	2.66
354	12	20	7.61	13.85
355	12	21	3.23	9.57
356	12	22	3.30	8.21
357	12	23	7.64	15.89
360	12	26	-	1.99
361	12	27	-	3.12
362	12	28	2.77	5.41
363	12	29	2.19	6.09
364	12	30	-	1.60
365	12	31	-	4.30
Number of Days Δ dv >= 1.0			27	91
Maximum Δ dv			7.64	15.89

Table E.9.28 Big Sandy - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
4	1	4	-	2.37
7	1	7	2.54	9.09
8	1	8	-	1.62
9	1	9	2.05	5.23
10	1	10	2.25	4.74
11	1	11	-	2.26
12	1	12	1.28	4.27
13	1	13	1.50	4.41
14	1	14	3.29	7.70
15	1	15	-	1.41
17	1	17	1.99	5.53
20	1	20	-	2.59
21	1	21	-	2.05
22	1	22	-	2.02
23	1	23	1.49	4.17
24	1	24	-	2.95
28	1	28	-	1.07
30	1	30	-	4.59
31	1	31	-	2.88
33	2	2	-	1.02
41	2	10	-	2.20
42	2	11	-	3.93
43	2	12	1.07	4.31
45	2	14	-	1.12
46	2	15	1.48	4.18
48	2	17	-	2.98
49	2	18	-	1.04
50	2	19	-	1.47
53	2	22	-	1.65
58	2	27	-	3.78
59	2	28	3.50	12.29
60	3	1	1.35	6.04
61	3	2	-	2.92
62	3	3	-	1.12
63	3	4	-	1.67
64	3	5	-	1.87
65	3	6	1.03	2.65
67	3	8	2.36	6.40
68	3	9	-	2.12
72	3	13	-	1.86
78	3	19	-	1.39
82	3	23	-	1.14
84	3	25	-	2.20
86	3	27	-	2.24
87	3	28	-	1.10
90	3	31	1.06	3.30
97	4	7	-	1.01
99	4	9	1.67	4.05
111	4	21	-	1.67
116	4	26	-	2.63
119	4	29	-	1.32
120	4	30	-	2.04
132	5	12	-	1.29
133	5	13	-	1.18
134	5	14	1.24	3.46
236	8	24	-	2.63

			Scenario	
Julian Day	Month	Day	1	2
265	9	22	-	1.05
275	10	2	-	1.40
276	10	3	-	1.34
281	10	8	-	1.15
298	10	25	-	2.40
304	10	31	-	4.49
305	11	1	1.94	3.73
307	11	3	-	1.06
308	11	4	-	1.16
309	11	5	-	1.09
310	11	6	-	2.18
311	11	7	-	1.30
313	11	9	-	1.31
316	11	12	-	1.00
320	11	16	-	1.05
323	11	19	-	1.35
326	11	22	-	1.95
329	11	25	-	1.87
331	11	27	-	1.40
336	12	2	-	1.67
337	12	3	-	1.13
340	12	6	-	1.46
341	12	7	-	2.01
342	12	8	1.54	3.80
344	12	10	-	2.77
345	12	11	-	6.62
346	12	12	1.68	5.36
347	12	13	1.51	2.88
348	12	14	-	3.30
349	12	15	-	6.08
350	12	16	1.33	4.09
353	12	19	1.41	2.81
354	12	20	7.59	13.81
355	12	21	3.25	9.63
356	12	22	3.44	8.49
357	12	23	7.67	15.94
360	12	26	-	2.19
361	12	27	-	3.36
362	12	28	2.98	5.78
363	12	29	2.38	6.51
364	12	30	-	1.59
365	12	31	-	4.20
Number of Days Δ dv >= 1.0			29	98
Maximum Δ dv			7.67	15.94

Table E.9.29 Boulder - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	2.91	11.42
8	1	8	-	3.53
9	1	9	-	5.40
10	1	10	-	2.74
11	1	11	2.42	5.43
12	1	12	1.74	6.06
13	1	13	-	5.20
14	1	14	3.39	9.73
15	1	15	-	4.10
16	1	16	1.93	5.95
17	1	17	-	5.07
21	1	21	-	2.94
22	1	22	-	1.40
23	1	23	-	3.42
24	1	24	1.02	4.95
27	1	27	-	1.37
30	1	30	-	3.74
31	1	31	-	2.63
40	2	9	-	3.66
41	2	10	-	1.68
43	2	12	-	2.28
44	2	13	-	1.50
45	2	14	-	2.43
46	2	15	-	4.87
47	2	16	-	1.13
48	2	17	-	1.90
49	2	18	-	2.62
53	2	22	-	1.67
56	2	25	-	1.04
58	2	27	-	2.85
59	2	28	-	7.50
60	3	1	-	2.02
61	3	2	1.70	5.14
62	3	3	-	3.06
63	3	4	-	2.29
64	3	5	-	1.24
65	3	6	-	2.01
67	3	8	-	6.78
68	3	9	-	3.51
69	3	10	-	1.84
71	3	12	1.23	2.60
72	3	13	1.93	6.58
73	3	14	-	3.04
74	3	15	-	1.59
77	3	18	-	1.27
78	3	19	-	1.31
81	3	22	-	1.76
84	3	25	-	1.98
86	3	27	-	2.12
87	3	28	-	1.10
89	3	30	-	2.46
90	3	31	-	2.85
92	4	2	-	1.34
97	4	7	-	2.37
98	4	8	-	1.13
99	4	9	1.77	6.74

			Scenario	
Julian Day	Month	Day	1	2
110	4	20	-	2.85
111	4	21	-	1.78
116	4	26	-	3.10
118	4	28	-	1.03
119	4	29	-	2.89
120	4	30	-	5.10
121	5	1	-	1.30
123	5	3	-	1.12
132	5	12	-	2.52
134	5	14	-	4.53
158	6	7	-	1.00
170	6	19	-	1.07
184	7	3	-	1.54
212	7	31	-	1.10
223	8	11	-	1.77
224	8	12	-	1.87
230	8	18	-	1.06
236	8	24	-	6.45
237	8	25	-	2.06
252	9	9	-	1.10
262	9	19	-	1.61
263	9	20	-	1.87
264	9	21	-	3.26
265	9	22	-	2.20
269	9	26	-	1.59
271	9	28	-	2.53
274	10	1	-	2.56
277	10	4	-	1.03
279	10	6	-	1.03
280	10	7	-	1.24
281	10	8	-	1.38
285	10	12	-	1.01
286	10	13	-	1.13
298	10	25	-	2.19
303	10	30	-	4.00
304	10	31	-	5.76
305	11	1	-	3.90
307	11	3	-	1.04
309	11	5	-	1.11
310	11	6	-	2.40
320	11	16	-	1.12
325	11	21	-	1.58
326	11	22	-	1.58
328	11	24	-	1.34
329	11	25	-	1.21
330	11	26	-	1.50
331	11	27	-	1.54
336	12	2	-	1.83
338	12	4	-	2.78
340	12	6	-	2.96
341	12	7	-	1.19
342	12	8	-	3.14
344	12	10	-	3.78
345	12	11	-	9.55
346	12	12	1.68	5.02
347	12	13	-	5.00
348	12	14	-	3.40
349	12	15	-	4.09
350	12	16	1.44	6.00

			Scenario	
Julian Day	Month	Day	1	2
353	12	19	4.49	9.11
354	12	20	4.63	14.15
355	12	21	2.93	11.94
356	12	22	2.45	12.22
357	12	23	7.70	19.09
358	12	24	-	1.76
361	12	27	-	3.61
362	12	28	4.13	8.84
363	12	29	-	2.22
364	12	30	-	1.25
365	12	31	-	1.82
Number of Days Δ dv >= 1.0			18	126
Maximum Δ dv			7.70	19.09

Table E.9.30 Boulder - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage- Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
4	1	4	-	1.06
7	1	7	3.29	12.39
8	1	8	-	3.77
9	1	9	-	5.63
10	1	10	-	2.94
11	1	11	2.49	5.58
12	1	12	1.83	6.29
13	1	13	-	5.72
14	1	14	3.63	10.24
15	1	15	-	4.03
16	1	16	2.05	6.24
17	1	17	-	5.71
21	1	21	-	3.41
22	1	22	-	1.66
23	1	23	-	3.97
24	1	24	1.22	5.72
27	1	27	-	1.36
30	1	30	-	4.29
31	1	31	-	2.95
40	2	9	-	4.17
41	2	10	-	1.91
43	2	12	-	2.59
44	2	13	-	1.72
45	2	14	-	2.73
46	2	15	-	5.41
47	2	16	-	1.31
48	2	17	-	2.21
49	2	18	-	3.03
53	2	22	-	1.96
56	2	25	-	1.24
58	2	27	-	3.25
59	2	28	-	8.02
60	3	1	-	2.27
61	3	2	1.95	5.78
62	3	3	1.10	3.46
63	3	4	-	2.35
64	3	5	-	1.37
65	3	6	-	2.29
67	3	8	-	7.66
68	3	9	-	4.08
69	3	10	1.01	2.17
71	3	12	1.22	2.59
72	3	13	2.08	6.99
73	3	14	-	3.43
74	3	15	-	1.84
77	3	18	-	1.50
78	3	19	-	1.53
81	3	22	-	1.94
84	3	25	-	2.18
86	3	27	-	2.42
87	3	28	-	1.28
89	3	30	-	2.87
90	3	31	-	3.33
92	4	2	-	1.29
97	4	7	-	2.23
98	4	8	-	1.04

			Scenario	
Julian Day	Month	Day	1	2
99	4	9	1.42	5.64
110	4	20	-	2.44
111	4	21	-	1.68
116	4	26	-	2.81
119	4	29	-	2.60
120	4	30	-	4.02
121	5	1	-	1.10
132	5	12	-	2.09
134	5	14	-	3.95
184	7	3	-	1.30
223	8	11	-	1.48
224	8	12	-	1.57
236	8	24	-	5.20
237	8	25	-	1.64
262	9	19	-	1.19
263	9	20	-	1.44
264	9	21	-	2.22
265	9	22	-	1.66
269	9	26	-	1.38
271	9	28	-	2.10
274	10	1	-	2.09
277	10	4	-	1.18
279	10	6	-	1.05
280	10	7	-	1.43
281	10	8	-	1.58
285	10	12	-	1.17
286	10	13	-	1.31
295	10	22	-	1.10
298	10	25	-	2.51
303	10	30	-	4.38
304	10	31	-	5.63
305	11	1	-	4.26
307	11	3	-	1.17
309	11	5	-	1.28
310	11	6	-	2.73
311	11	7	-	1.01
313	11	9	-	1.11
320	11	16	-	1.29
325	11	21	-	1.81
326	11	22	-	1.81
328	11	24	-	1.54
329	11	25	-	1.39
330	11	26	-	1.72
331	11	27	-	1.67
336	12	2	-	2.09
338	12	4	-	3.18
340	12	6	-	3.37
341	12	7	-	1.34
342	12	8	-	3.56
344	12	10	-	4.25
345	12	11	-	9.53
346	12	12	1.75	5.21
347	12	13	-	4.70
348	12	14	-	3.39
349	12	15	-	4.36
350	12	16	1.53	6.30
353	12	19	4.72	9.49
354	12	20	4.61	14.10
355	12	21	2.95	12.00

			Scenario	
Julian Day	Month	Day	1	2
356	12	22	2.56	12.57
357	12	23	7.74	19.14
358	12	24	-	1.91
361	12	27	-	3.88
362	12	28	4.43	9.35
363	12	29	-	2.41
364	12	30	-	1.24
365	12	31	-	1.77
Number of Days Δ dv >= 1.0			20	123
Maximum Δ dv			7.74	19.14

Table E.9.31 Bronx - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.31
7	1	7	-	2.69
11	1	11	-	3.74
12	1	12	1.30	4.67
14	1	14	-	4.45
15	1	15	-	2.02
16	1	16	1.05	3.62
24	1	24	-	4.09
25	1	25	-	2.08
26	1	26	1.15	3.18
27	1	27	2.33	8.41
39	2	8	-	2.77
40	2	9	1.14	4.53
43	2	12	-	1.55
44	2	13	-	4.61
45	2	14	-	2.23
61	3	2	-	4.01
62	3	3	1.25	5.43
63	3	4	1.73	5.65
72	3	13	-	3.29
74	3	15	-	2.56
84	3	25	-	2.17
87	3	28	-	2.20
99	4	9	-	4.21
107	4	17	-	1.21
110	4	20	-	5.88
116	4	26	-	1.72
118	4	28	-	1.55
119	4	29	-	2.75
120	4	30	-	4.04
123	5	3	-	1.72
124	5	4	-	1.61
125	5	5	-	2.72
127	5	7	-	1.78
131	5	11	-	1.98
147	5	27	-	1.52
170	6	19	-	2.00
184	7	3	-	1.13
187	7	6	-	1.03
202	7	21	-	1.11
205	7	24	-	1.08
218	8	6	-	1.01
223	8	11	-	1.01
224	8	12	-	1.42
234	8	22	-	1.01
235	8	23	-	1.35
236	8	24	-	2.59
237	8	25	-	3.69
238	8	26	-	1.12
239	8	27	-	1.18
241	8	29	-	1.03
252	9	9	-	1.61
254	9	11	-	1.23
262	9	19	-	1.04
263	9	20	1.16	8.34
264	9	21	-	1.66

			Scenario	
Julian Day	Month	Day	1	2
265	9	22	-	1.69
268	9	25	-	1.07
269	9	26	-	1.87
271	9	28	-	2.74
280	10	7	-	1.95
281	10	8	-	1.12
325	11	21	-	1.56
347	12	13	-	1.14
350	12	16	1.35	5.84
351	12	17	1.24	3.98
352	12	18	-	2.58
353	12	19	2.52	12.58
354	12	20	2.66	11.74
355	12	21	1.40	10.77
356	12	22	1.05	8.91
357	12	23	2.03	13.04
362	12	28	1.68	9.51
Number of Days Δ dv >= 1.0			16	73
Maximum Δ dv			2.66	13.04

Table E.9.32 Bronx - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	1.55
7	1	7	-	3.04
11	1	11	-	3.85
12	1	12	1.37	4.86
13	1	13	-	1.09
14	1	14	-	4.75
15	1	15	-	1.98
16	1	16	1.12	3.82
24	1	24	1.01	4.74
25	1	25	-	2.45
26	1	26	1.34	3.67
27	1	27	2.33	8.41
39	2	8	-	3.16
40	2	9	1.32	5.12
43	2	12	-	1.77
44	2	13	-	5.16
45	2	14	-	2.51
61	3	2	-	4.54
62	3	3	1.43	6.06
63	3	4	1.78	5.77
72	3	13	-	3.53
74	3	15	-	2.94
83	3	24	-	1.04
84	3	25	-	2.39
87	3	28	-	2.54
99	4	9	-	3.45
107	4	17	-	1.13
110	4	20	-	5.14
116	4	26	-	1.55
118	4	28	-	1.39
119	4	29	-	2.47
120	4	30	-	3.15
123	5	3	-	1.36
124	5	4	-	1.08
125	5	5	-	2.10
127	5	7	-	1.49
131	5	11	-	1.57
147	5	27	-	1.12
170	6	19	-	1.80
224	8	12	-	1.18
235	8	23	-	1.14
236	8	24	-	2.01
237	8	25	-	2.98
239	8	27	-	1.02
252	9	9	-	1.33
254	9	11	-	1.05
263	9	20	-	6.84
264	9	21	-	1.11
265	9	22	-	1.26
269	9	26	-	1.62
271	9	28	-	2.28
280	10	7	-	2.23
281	10	8	-	1.29
285	10	12	-	1.08
325	11	21	-	1.80
347	12	13	-	1.06

			Scenario	
Julian Day	Month	Day	1	2
350	12	16	1.43	6.13
351	12	17	1.28	4.09
352	12	18	-	2.73
353	12	19	2.66	13.03
354	12	20	2.64	11.70
355	12	21	1.42	10.83
356	12	22	1.10	9.20
357	12	23	2.04	13.08
362	12	28	1.82	10.04
Number of Days Δ dv >= 1.0			16	65
Maximum Δ dv			2.66	13.08

Table E.9.33 Cora - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	4.54
8	1	8	-	1.27
9	1	9	-	3.21
10	1	10	-	3.14
11	1	11	1.68	7.53
12	1	12	2.03	5.89
13	1	13	-	3.41
14	1	14	1.72	6.05
15	1	15	-	3.04
16	1	16	-	4.54
24	1	24	-	4.56
26	1	26	-	2.79
27	1	27	1.23	6.09
39	2	8	-	1.46
40	2	9	1.39	4.91
43	2	12	-	1.59
44	2	13	-	3.47
45	2	14	-	3.22
61	3	2	1.38	5.06
62	3	3	1.22	4.50
63	3	4	1.70	5.12
65	3	6	-	1.94
68	3	9	-	2.31
69	3	10	-	1.72
70	3	11	-	1.82
71	3	12	-	2.94
72	3	13	1.17	7.22
74	3	15	-	2.23
84	3	25	-	3.60
87	3	28	-	2.36
96	4	6	-	1.04
99	4	9	-	4.70
110	4	20	-	6.59
116	4	26	-	2.97
118	4	28	-	1.39
119	4	29	-	2.78
120	4	30	-	4.62
123	5	3	-	1.44
124	5	4	-	1.31
125	5	5	-	1.76
131	5	11	-	1.42
132	5	12	-	1.61
134	5	14	-	1.17
147	5	27	-	1.01
170	6	19	-	1.72
224	8	12	-	2.29
236	8	24	-	2.06
237	8	25	-	3.18
252	9	9	-	1.42
254	9	11	-	1.43
262	9	19	-	1.16
263	9	20	-	7.97
264	9	21	-	2.72
265	9	22	-	5.64
269	9	26	-	1.24
270	9	27	-	1.12

			Scenario	
Julian Day	Month	Day	1	2
271	9	28	-	2.57
280	10	7	-	1.55
285	10	12	-	1.59
295	10	22	-	1.87
305	11	1	-	3.14
325	11	21	-	2.17
340	12	6	-	1.04
346	12	12	-	2.53
347	12	13	-	3.36
350	12	16	1.16	6.67
351	12	17	-	1.37
352	12	18	-	2.06
353	12	19	3.21	13.09
354	12	20	3.22	13.44
355	12	21	1.68	10.40
356	12	22	1.20	10.03
357	12	23	3.03	15.34
362	12	28	2.42	9.54
Number of Days Δ dv >= 1.0			16	74
Maximum Δ dv			3.22	15.34

Table E.9.34 Cora - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
7	1	7	-	5.08
8	1	8	-	1.37
9	1	9	-	3.36
10	1	10	-	3.37
11	1	11	1.73	7.71
12	1	12	2.12	6.11
13	1	13	-	3.78
14	1	14	1.86	6.42
15	1	15	-	2.98
16	1	16	1.03	4.78
24	1	24	1.11	5.28
25	1	25	-	1.03
26	1	26	1.04	3.23
27	1	27	1.23	6.09
39	2	8	-	1.68
40	2	9	1.61	5.55
43	2	12	-	1.81
44	2	13	-	3.91
45	2	14	1.01	3.59
61	3	2	1.58	5.69
62	3	3	1.39	5.04
63	3	4	1.75	5.23
65	3	6	-	2.22
68	3	9	-	2.71
69	3	10	-	2.03
70	3	11	-	2.10
71	3	12	-	2.93
72	3	13	1.26	7.66
74	3	15	-	2.57
84	3	25	-	3.94
87	3	28	-	2.72
99	4	9	-	3.87
110	4	20	-	5.78
116	4	26	-	2.69
118	4	28	-	1.24
119	4	29	-	2.49
120	4	30	-	3.62
123	5	3	-	1.13
125	5	5	-	1.34
131	5	11	-	1.13
132	5	12	-	1.33
170	6	19	-	1.54
224	8	12	-	1.92
236	8	24	-	1.59
237	8	25	-	2.56
252	9	9	-	1.18
254	9	11	-	1.22
263	9	20	-	6.52
264	9	21	-	1.84
265	9	22	-	4.42
269	9	26	-	1.07
271	9	28	-	2.13
280	10	7	-	1.77
281	10	8	-	1.08
285	10	12	-	1.83
295	10	22	-	2.15

			Scenario	
Julian Day	Month	Day	1	2
305	11	1	-	3.44
325	11	21	-	2.49
326	11	22	-	1.02
340	12	6	-	1.19
346	12	12	-	2.64
347	12	13	-	3.14
350	12	16	1.23	6.99
351	12	17	-	1.41
352	12	18	-	2.18
353	12	19	3.38	13.55
354	12	20	3.20	13.40
355	12	21	1.69	10.46
356	12	22	1.26	10.34
357	12	23	3.04	15.39
362	12	28	2.61	10.08
Number of Days Δ dv >= 1.0			20	71
Maximum Δ dv			3.38	15.39

Table E.9.35 Daniel - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	2.47
6	1	6	-	2.35
7	1	7	1.06	7.13
11	1	11	-	2.29
12	1	12	-	2.56
14	1	14	1.12	3.32
15	1	15	-	1.47
16	1	16	-	2.89
21	1	21	-	1.45
24	1	24	1.25	5.81
25	1	25	-	3.42
26	1	26	1.27	3.39
27	1	27	3.46	11.60
39	2	8	-	4.97
40	2	9	1.52	4.79
43	2	12	-	2.82
44	2	13	-	4.82
45	2	14	-	1.87
53	2	22	-	1.64
56	2	25	-	2.04
61	3	2	1.48	9.10
62	3	3	1.92	7.80
63	3	4	1.81	6.70
68	3	9	-	1.25
72	3	13	-	1.68
74	3	15	-	5.27
75	3	16	-	1.62
77	3	18	-	1.26
80	3	21	-	1.15
83	3	24	-	1.09
84	3	25	-	1.36
87	3	28	-	3.33
96	4	6	-	1.36
97	4	7	-	1.05
98	4	8	-	1.30
99	4	9	-	6.78
104	4	14	-	1.66
106	4	16	-	1.45
107	4	17	-	2.52
109	4	19	-	1.81
110	4	20	1.01	6.31
116	4	26	-	5.62
117	4	27	-	1.17
118	4	28	-	3.55
119	4	29	-	6.06
120	4	30	-	4.61
122	5	2	-	1.78
123	5	3	-	3.01
124	5	4	-	2.71
125	5	5	1.39	5.65
126	5	6	-	1.03
127	5	7	-	2.28
131	5	11	-	3.17
132	5	12	-	1.77
134	5	14	-	1.12
146	5	26	-	1.14

			Scenario	
Julian Day	Month	Day	1	2
147	5	27	-	3.61
161	6	10	-	1.53
166	6	15	-	1.35
169	6	18	-	1.42
170	6	19	-	4.80
195	7	14	-	1.00
202	7	21	-	1.25
205	7	24	-	1.22
217	8	5	-	1.04
237	8	25	-	4.24
246	9	3	-	1.16
252	9	9	-	1.86
254	9	11	-	1.97
262	9	19	-	1.97
263	9	20	1.96	9.69
264	9	21	-	4.90
265	9	22	-	3.61
268	9	25	-	1.70
269	9	26	-	2.29
270	9	27	-	1.80
271	9	28	-	5.32
272	9	29	-	1.07
280	10	7	-	4.13
281	10	8	-	2.37
285	10	12	-	1.37
290	10	17	-	1.05
295	10	22	-	1.14
320	11	16	-	1.47
325	11	21	-	4.11
326	11	22	-	1.08
350	12	16	1.71	7.02
351	12	17	1.87	7.14
352	12	18	-	6.93
353	12	19	4.26	16.31
354	12	20	3.43	16.85
355	12	21	2.33	15.87
356	12	22	1.69	11.74
357	12	23	3.19	17.51
362	12	28	1.87	11.88
363	12	29	-	1.20
Number of Days Δ dv >= 1.0			20	96
Maximum Δ dv			4.26	17.51

Table E.9.36 Daniel - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	2.90
6	1	6	-	2.65
7	1	7	1.21	7.87
11	1	11	-	2.36
12	1	12	-	2.68
14	1	14	1.21	3.55
15	1	15	-	1.44
16	1	16	1.02	3.06
21	1	21	-	1.69
24	1	24	1.49	6.67
25	1	25	-	3.99
26	1	26	1.49	3.90
27	1	27	3.46	11.59
39	2	8	-	5.59
40	2	9	1.76	5.41
43	2	12	-	3.19
44	2	13	1.05	5.39
45	2	14	-	2.10
53	2	22	-	1.94
56	2	25	-	2.40
61	3	2	1.70	10.03
62	3	3	2.19	8.60
63	3	4	1.86	6.83
68	3	9	-	1.49
70	3	11	-	1.06
72	3	13	-	1.82
74	3	15	-	5.95
75	3	16	-	1.90
77	3	18	-	1.49
80	3	21	-	1.36
83	3	24	-	1.27
84	3	25	-	1.50
87	3	28	-	3.81
96	4	6	-	1.28
98	4	8	-	1.20
99	4	9	-	5.67
104	4	14	-	1.61
106	4	16	-	1.37
107	4	17	-	2.36
109	4	19	-	1.72
110	4	20	-	5.53
116	4	26	-	5.14
117	4	27	-	1.04
118	4	28	-	3.22
119	4	29	-	5.52
120	4	30	-	3.62
122	5	2	-	1.57
123	5	3	-	2.40
124	5	4	-	1.85
125	5	5	1.05	4.49
127	5	7	-	1.92
131	5	11	-	2.56
132	5	12	-	1.46
147	5	27	-	2.72
161	6	10	-	1.16
166	6	15	-	1.32

			Scenario	
Julian Day	Month	Day	1	2
169	6	18	-	1.31
170	6	19	-	4.37
202	7	21	-	1.02
205	7	24	-	1.04
237	8	25	-	3.44
252	9	9	-	1.54
254	9	11	-	1.69
262	9	19	-	1.46
263	9	20	1.51	8.04
264	9	21	-	3.43
265	9	22	-	2.76
268	9	25	-	1.35
269	9	26	-	1.99
270	9	27	-	1.47
271	9	28	-	4.51
280	10	7	-	4.65
281	10	8	-	2.70
285	10	12	-	1.58
290	10	17	-	1.21
295	10	22	-	1.31
320	11	16	-	1.69
325	11	21	-	4.65
326	11	22	-	1.24
350	12	16	1.82	7.35
351	12	17	1.92	7.32
352	12	18	-	7.25
353	12	19	4.48	16.82
354	12	20	3.41	16.81
355	12	21	2.35	15.94
356	12	22	1.77	12.08
357	12	23	3.21	17.56
362	12	28	2.03	12.48
363	12	29	-	1.31
Number of Days Δ dv >= 1.0			21	89
Maximum Δ dv			4.48	17.56

Table E.9.37 Farson - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
3	1	3	1.37	5.11
4	1	4	-	2.46
7	1	7	1.81	5.25
17	1	17	-	3.14
18	1	18	-	2.01
21	1	21	-	2.47
22	1	22	6.40	13.46
23	1	23	3.06	8.23
24	1	24	-	2.65
28	1	28	3.08	8.73
29	1	29	-	2.35
30	1	30	3.00	7.18
41	2	10	3.72	6.88
43	2	12	-	2.15
46	2	15	2.26	5.18
52	2	21	2.12	4.25
53	2	22	5.81	10.14
54	2	23	6.39	12.73
55	2	24	2.03	5.67
56	2	25	-	2.93
57	2	26	7.44	12.61
58	2	27	-	1.46
59	2	28	-	2.08
60	3	1	1.23	4.13
74	3	15	-	1.35
76	3	17	3.73	11.46
78	3	19	-	1.22
86	3	27	-	1.32
90	3	31	-	1.58
92	4	2	-	2.40
96	4	6	-	1.39
98	4	8	-	1.71
100	4	10	-	1.12
109	4	19	-	2.04
111	4	21	-	1.52
113	4	23	-	1.73
115	4	25	-	1.44
116	4	26	-	1.82
119	4	29	1.91	4.04
120	4	30	3.87	9.25
121	5	1	-	1.73
122	5	2	-	1.37
123	5	3	2.63	5.69
124	5	4	-	1.63
128	5	8	1.25	3.05
133	5	13	4.24	8.11
137	5	17	1.17	2.69
139	5	19	1.40	2.97
140	5	20	1.96	4.66
142	5	22	1.92	3.98
147	5	27	2.17	4.97
148	5	28	5.24	8.94
157	6	6	-	1.80
161	6	10	-	1.42
162	6	11	-	1.22
184	7	3	-	3.30

Julian Day	Month	Day	Scenario 1	Scenario 2
188	7	7	1.32	2.58
231	8	19	-	1.28
256	9	13	-	1.16
267	9	24	-	1.53
273	9	30	-	1.04
274	10	1	1.22	4.12
275	10	2	-	1.49
276	10	3	2.28	5.44
279	10	6	1.19	3.15
282	10	9	-	2.02
283	10	10	-	1.59
284	10	11	2.49	4.58
289	10	16	-	1.97
290	10	17	-	1.84
291	10	18	1.17	3.38
297	10	24	2.66	6.53
309	11	5	-	2.23
319	11	15	-	1.36
320	11	16	-	1.63
321	11	17	2.86	6.16
322	11	18	4.71	9.13
323	11	19	-	1.75
324	11	20	1.45	5.73
325	11	21	2.04	4.84
326	11	22	-	1.81
327	11	23	-	1.80
332	11	28	1.35	4.19
350	12	16	-	2.05
354	12	20	4.07	7.92
355	12	21	7.21	13.14
356	12	22	2.16	6.09
357	12	23	1.60	4.32
358	12	24	2.39	5.19
359	12	25	1.79	5.13
360	12	26	1.68	4.36
361	12	27	-	1.36
362	12	28	-	1.48
363	12	29	1.42	4.38
364	12	30	1.37	3.70
Number of Days Δ dv >= 1.0			47	95
Maximum Δ dv			7.44	13.46

Table E.9.38 Farson - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
3	1	3	1.48	5.43
4	1	4	-	2.63
7	1	7	1.90	5.48
17	1	17	-	3.17
18	1	18	-	2.06
21	1	21	-	2.63
22	1	22	6.83	14.12
23	1	23	3.29	8.72
24	1	24	-	2.76
28	1	28	3.17	8.95
29	1	29	-	2.53
30	1	30	3.24	7.65
41	2	10	4.06	7.42
43	2	12	-	2.39
46	2	15	2.34	5.32
52	2	21	2.16	4.32
53	2	22	5.59	9.82
54	2	23	6.41	12.78
55	2	24	2.07	5.76
56	2	25	-	2.97
57	2	26	7.64	12.89
58	2	27	-	1.59
59	2	28	-	2.22
60	3	1	1.29	4.30
74	3	15	-	1.38
76	3	17	4.06	12.17
78	3	19	-	1.41
86	3	27	-	1.54
90	3	31	-	1.85
92	4	2	-	2.27
96	4	6	-	1.33
98	4	8	-	1.47
109	4	19	-	1.34
111	4	21	-	1.12
113	4	23	-	1.19
115	4	25	-	1.11
116	4	26	-	1.27
119	4	29	1.43	3.10
120	4	30	3.04	7.62
121	5	1	-	1.29
123	5	3	1.72	3.91
124	5	4	-	1.27
128	5	8	1.06	2.61
133	5	13	3.32	6.59
137	5	17	1.05	2.43
139	5	19	1.29	2.75
140	5	20	1.81	4.36
142	5	22	1.64	3.43
147	5	27	1.51	3.59
148	5	28	4.06	7.17
157	6	6	-	1.67
161	6	10	-	1.21
162	6	11	-	1.01
184	7	3	-	2.69
188	7	7	1.11	2.20
231	8	19	-	1.10

			Scenario	
Julian Day	Month	Day	1	2
267	9	24	-	1.27
274	10	1	-	3.46
275	10	2	-	1.67
276	10	3	2.54	5.97
279	10	6	1.31	3.43
282	10	9	-	2.30
283	10	10	-	1.82
284	10	11	2.82	5.13
289	10	16	-	2.24
290	10	17	-	2.09
291	10	18	1.34	3.81
297	10	24	2.70	6.61
309	11	5	-	2.48
319	11	15	-	1.27
320	11	16	-	1.55
321	11	17	2.78	6.01
322	11	18	4.73	9.16
323	11	19	-	1.91
324	11	20	1.51	5.94
325	11	21	2.15	5.08
326	11	22	-	2.01
327	11	23	-	1.95
332	11	28	1.48	4.56
350	12	16	-	2.13
354	12	20	4.21	8.14
355	12	21	7.49	13.52
356	12	22	2.31	6.42
357	12	23	1.72	4.59
358	12	24	2.58	5.55
359	12	25	1.94	5.50
360	12	26	1.82	4.67
361	12	27	-	1.50
362	12	28	-	1.62
363	12	29	1.54	4.72
364	12	30	1.38	3.74
Number of Days Δ dv >= 1.0			46	91
Maximum Δ dv			7.64	14.12

Table E.9.39 La Barge - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
6	1	6	7.67	14.23
7	1	7	3.58	9.37
17	1	17	-	1.39
20	1	20	-	1.43
21	1	21	1.39	4.28
22	1	22	-	1.65
23	1	23	1.57	5.34
24	1	24	-	1.19
27	1	27	-	1.62
28	1	28	6.73	12.81
30	1	30	-	1.81
39	2	8	-	1.17
40	2	9	1.12	1.68
61	3	2	-	1.44
74	3	15	-	1.85
89	3	30	-	1.23
99	4	9	-	1.56
108	4	18	-	1.27
109	4	19	-	3.61
112	4	22	-	3.24
113	4	23	1.12	2.42
114	4	24	-	2.15
117	4	27	-	1.35
118	4	28	-	2.66
119	4	29	-	1.77
122	5	2	1.44	3.81
123	5	3	-	1.63
124	5	4	2.59	4.80
125	5	5	1.33	2.15
130	5	10	-	1.12
131	5	11	-	1.03
132	5	12	-	3.44
134	5	14	-	1.70
135	5	15	-	1.10
143	5	23	1.29	2.43
144	5	24	-	1.31
147	5	27	-	1.34
148	5	28	-	4.16
149	5	29	1.21	3.02
150	5	30	-	2.35
155	6	4	-	1.44
156	6	5	1.69	3.51
160	6	9	1.29	1.85
161	6	10	-	1.70
162	6	11	3.23	7.33
163	6	12	-	2.38
172	6	21	-	1.02
175	6	24	-	1.24
180	6	29	1.22	1.48
201	7	20	1.35	2.84
202	7	21	-	3.11
205	7	24	-	1.08
213	8	1	-	1.26
216	8	4	-	1.01
235	8	23	-	1.11
262	9	19	-	1.51

			Scenario	
Julian Day	Month	Day	1	2
264	9	21	-	3.17
265	9	22	1.64	2.42
268	9	25	1.13	1.97
273	9	30	1.12	8.02
274	10	1	-	1.19
352	12	18	2.16	3.96
354	12	20	1.41	3.37
355	12	21	2.75	7.30
356	12	22	1.87	5.05
357	12	23	-	1.57
363	12	29	-	1.93
Number of Days Δ dv >= 1.0			24	67
Maximum Δ dv			7.67	14.23

Table E.9.40 La Barge - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
6	1	6	8.27	15.06
7	1	7	3.88	9.96
17	1	17	-	1.47
20	1	20	-	1.44
21	1	21	1.52	4.62
22	1	22	-	1.95
23	1	23	1.87	6.16
24	1	24	-	1.42
27	1	27	-	1.57
28	1	28	6.72	12.81
30	1	30	-	2.12
39	2	8	-	1.27
40	2	9	1.16	1.75
61	3	2	1.03	1.65
74	3	15	-	1.78
87	3	28	-	1.10
89	3	30	-	1.41
109	4	19	-	3.10
112	4	22	-	2.74
113	4	23	-	1.57
114	4	24	-	1.62
117	4	27	-	1.00
118	4	28	-	2.26
119	4	29	-	1.15
122	5	2	-	2.37
123	5	3	-	1.17
124	5	4	1.70	3.28
125	5	5	-	1.52
132	5	12	-	2.11
143	5	23	-	1.57
148	5	28	-	2.55
149	5	29	-	1.87
150	5	30	-	1.95
156	6	5	1.11	2.37
160	6	9	-	1.08
162	6	11	2.08	5.03
163	6	12	-	2.11
180	6	29	1.00	1.21
201	7	20	1.09	2.34
202	7	21	-	2.36
213	8	1	-	1.10
262	9	19	-	1.25
264	9	21	-	2.64
265	9	22	1.04	1.56
268	9	25	-	1.22
273	9	30	-	5.49
352	12	18	2.31	4.21
354	12	20	1.54	3.65
355	12	21	3.06	7.97
356	12	22	2.13	5.62
357	12	23	-	1.77
362	12	28	-	1.04
363	12	29	-	2.14
Number of Days Δ dv >= 1.0			17	53
Maximum Δ dv			8.27	15.06

Table E.9.41 Merna - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	2.92
6	1	6	-	2.28
7	1	7	-	1.65
24	1	24	-	2.81
25	1	25	1.24	3.26
26	1	26	-	1.28
27	1	27	3.24	7.89
39	2	8	-	2.87
40	2	9	-	2.55
44	2	13	1.10	5.10
61	3	2	-	3.08
62	3	3	-	4.55
74	3	15	-	1.04
87	3	28	1.08	3.47
99	4	9	-	1.00
106	4	16	-	1.16
107	4	17	-	2.14
109	4	19	-	1.37
110	4	20	-	1.88
118	4	28	-	2.00
119	4	29	-	1.01
122	5	2	-	1.68
123	5	3	-	1.59
124	5	4	-	1.52
125	5	5	2.04	6.12
126	5	6	-	1.11
127	5	7	-	1.20
131	5	11	-	1.40
134	5	14	-	1.01
147	5	27	-	2.40
161	6	10	-	1.33
180	6	29	-	1.07
263	9	20	1.01	6.88
264	9	21	-	2.07
265	9	22	-	1.10
269	9	26	-	1.15
270	9	27	-	1.33
350	12	16	-	1.29
351	12	17	-	4.04
352	12	18	-	2.61
353	12	19	2.16	8.29
354	12	20	2.13	9.52
355	12	21	1.58	10.88
356	12	22	1.26	8.29
357	12	23	1.48	9.90
362	12	28	-	4.15
Number of Days Δ dv >= 1.0			11	46
Maximum Δ dv			3.24	10.88

Table E.9.42 Merna - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
5	1	5	-	3.42
6	1	6	-	2.58
7	1	7	-	1.88
24	1	24	-	3.29
25	1	25	1.47	3.80
26	1	26	-	1.50
27	1	27	3.24	7.88
39	2	8	-	3.27
40	2	9	-	2.92
44	2	13	1.25	5.70
61	3	2	-	3.50
62	3	3	1.13	5.10
74	3	15	-	1.21
75	3	16	-	1.04
87	3	28	1.26	3.97
106	4	16	-	1.10
107	4	17	-	2.00
109	4	19	-	1.30
110	4	20	-	1.61
118	4	28	-	1.80
122	5	2	-	1.48
123	5	3	-	1.25
124	5	4	-	1.02
125	5	5	1.56	4.89
126	5	6	-	1.00
127	5	7	-	1.00
131	5	11	-	1.11
147	5	27	-	1.78
161	6	10	-	1.00
263	9	20	-	5.58
264	9	21	-	1.38
270	9	27	-	1.09
350	12	16	-	1.37
351	12	17	-	4.15
352	12	18	-	2.76
353	12	19	2.28	8.65
354	12	20	2.12	9.49
355	12	21	1.59	10.93
356	12	22	1.33	8.57
357	12	23	1.49	9.94
362	12	28	-	4.45
Number of Days Δ dv >= 1.0			11	41
Maximum Δ dv			3.24	10.93

Table E.9.43 Pinedale - Summary of Days Above Visibility Thresholds Using FLAG Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
6	1	6	-	1.19
7	1	7	1.57	7.62
8	1	8	-	2.68
9	1	9	-	5.69
10	1	10	-	4.51
11	1	11	1.80	7.63
12	1	12	2.02	6.00
13	1	13	1.50	5.89
14	1	14	2.25	7.70
15	1	15	-	7.01
16	1	16	1.34	5.52
21	1	21	-	1.63
23	1	23	-	1.68
24	1	24	1.05	5.92
26	1	26	-	2.27
27	1	27	-	4.52
30	1	30	-	1.27
39	2	8	-	1.55
40	2	9	1.31	5.04
41	2	10	-	1.07
43	2	12	-	3.06
44	2	13	-	3.32
45	2	14	-	3.95
46	2	15	-	4.13
49	2	18	-	1.31
53	2	22	-	1.46
56	2	25	-	1.29
60	3	1	-	1.73
61	3	2	1.80	5.75
62	3	3	1.13	4.03
63	3	4	1.18	3.89
64	3	5	-	1.46
65	3	6	-	2.52
67	3	8	-	1.95
68	3	9	1.07	3.11
69	3	10	1.26	2.79
70	3	11	-	1.20
71	3	12	-	3.03
72	3	13	1.69	7.18
73	3	14	-	2.89
74	3	15	-	2.41
78	3	19	-	1.01
81	3	22	-	1.52
84	3	25	-	2.53
86	3	27	-	1.05
87	3	28	-	2.52
96	4	6	-	1.09
97	4	7	-	1.54
99	4	9	-	5.47
110	4	20	-	5.50
111	4	21	-	1.29
115	4	25	-	1.04
116	4	26	-	3.99
118	4	28	-	1.37
119	4	29	-	3.06
120	4	30	-	6.57
121	5	1	-	2.70

			Scenario	
Julian Day	Month	Day	1	2
123	5	3	-	1.37
124	5	4	-	1.11
125	5	5	-	1.49
131	5	11	-	1.05
132	5	12	-	2.37
134	5	14	-	1.41
147	5	27	-	1.07
170	6	19	-	2.17
223	8	11	-	1.25
224	8	12	-	2.97
236	8	24	-	5.50
237	8	25	-	2.96
249	9	6	-	1.12
252	9	9	-	1.47
254	9	11	-	1.29
262	9	19	-	1.89
263	9	20	-	7.20
264	9	21	-	4.71
265	9	22	-	5.04
268	9	25	-	1.22
269	9	26	-	1.40
270	9	27	-	1.50
271	9	28	-	2.54
279	10	6	-	1.40
280	10	7	-	1.47
281	10	8	-	1.24
285	10	12	-	1.63
295	10	22	-	2.02
304	10	31	-	1.68
305	11	1	-	3.96
310	11	6	-	1.93
311	11	7	-	1.23
312	11	8	-	1.11
314	11	10	-	1.00
325	11	21	-	2.00
326	11	22	-	1.09
328	11	24	-	1.11
331	11	27	-	1.20
336	12	2	-	1.55
338	12	4	-	1.63
340	12	6	-	2.07
342	12	8	-	2.12
344	12	10	-	2.68
345	12	11	-	8.80
346	12	12	-	3.69
347	12	13	-	5.39
348	12	14	-	1.11
350	12	16	1.09	6.84
352	12	18	-	1.53
353	12	19	4.27	12.00
354	12	20	3.97	14.82
355	12	21	2.27	11.03
356	12	22	1.58	11.88
357	12	23	4.87	17.91
358	12	24	-	1.58
361	12	27	-	1.52
362	12	28	3.24	9.35
363	12	29	-	1.14
Number of Days Δ dv >= 1.0			21	115
Maximum Δ dv			4.87	17.91

Table E.9.44 Pinedale - Summary of Days Above Visibility Thresholds Using IMPROVE Background Data
Predicted Δ dv Shown for Early Project Development Stage - Direct and Cumulative Modeled Scenarios - MVISBK=2

			Scenario	
Julian Day	Month	Day	1	2
6	1	6	-	1.36
7	1	7	1.78	8.39
8	1	8	-	2.88
9	1	9	-	5.93
10	1	10	-	4.82
11	1	11	1.86	7.81
12	1	12	2.11	6.23
13	1	13	1.68	6.47
14	1	14	2.42	8.15
15	1	15	-	6.90
16	1	16	1.42	5.81
21	1	21	-	1.90
23	1	23	-	1.99
24	1	24	1.25	6.79
26	1	26	-	2.63
27	1	27	-	4.51
30	1	30	-	1.48
39	2	8	-	1.79
40	2	9	1.51	5.68
41	2	10	-	1.22
43	2	12	-	3.46
44	2	13	-	3.74
45	2	14	1.07	4.38
46	2	15	-	4.61
49	2	18	-	1.53
53	2	22	-	1.72
56	2	25	-	1.52
60	3	1	-	1.95
61	3	2	2.07	6.44
62	3	3	1.29	4.53
63	3	4	1.22	3.98
64	3	5	-	1.61
65	3	6	-	2.87
67	3	8	-	2.28
68	3	9	1.26	3.62
69	3	10	1.49	3.27
70	3	11	-	1.39
71	3	12	-	3.02
72	3	13	1.83	7.62
73	3	14	-	3.26
74	3	15	-	2.77
75	3	16	-	1.05
78	3	19	-	1.19
81	3	22	-	1.67
84	3	25	-	2.78
86	3	27	-	1.22
87	3	28	-	2.90
96	4	6	-	1.03
97	4	7	-	1.45
99	4	9	-	4.53
110	4	20	-	4.80
111	4	21	-	1.22
116	4	26	-	3.63
118	4	28	-	1.23
119	4	29	-	2.75
120	4	30	-	5.25

			Scenario	
Julian Day	Month	Day	1	2
121	5	1	-	2.30
123	5	3	-	1.07
125	5	5	-	1.13
132	5	12	-	1.96
134	5	14	-	1.20
170	6	19	-	1.96
223	8	11	-	1.04
224	8	12	-	2.50
236	8	24	-	4.39
237	8	25	-	2.38
252	9	9	-	1.22
254	9	11	-	1.10
262	9	19	-	1.40
263	9	20	-	5.86
264	9	21	-	3.28
265	9	22	-	3.92
269	9	26	-	1.21
270	9	27	-	1.23
271	9	28	-	2.11
279	10	6	-	1.43
280	10	7	-	1.69
281	10	8	-	1.42
285	10	12	-	1.88
286	10	13	-	1.12
295	10	22	-	2.31
304	10	31	-	1.64
305	11	1	-	4.33
310	11	6	-	2.20
311	11	7	-	1.40
312	11	8	-	1.26
314	11	10	-	1.14
320	11	16	-	1.08
325	11	21	-	2.30
326	11	22	-	1.25
328	11	24	-	1.28
330	11	26	-	1.13
331	11	27	-	1.30
336	12	2	-	1.77
338	12	4	-	1.87
340	12	6	-	2.37
342	12	8	-	2.42
344	12	10	-	3.03
345	12	11	-	8.79
346	12	12	-	3.84
347	12	13	-	5.07
348	12	14	-	1.11
350	12	16	1.16	7.17
352	12	18	-	1.62
353	12	19	4.49	12.44
354	12	20	3.95	14.78
355	12	21	2.29	11.09
356	12	22	1.65	12.23
357	12	23	4.90	17.96
358	12	24	-	1.72
361	12	27	-	1.64
362	12	28	3.48	9.88
363	12	29	-	1.24
Number of Days Δ dv >= 1.0			22	113
Maximum Δ dv			4.90	17.96

Table E.10.1 - Summary of Maximum Modeled NO_2 Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources

		Bridger Wilderness Class I		Fitzpatrick Wilderness Class I		Popo Agie Wilderness Class II		Wind River Roadless Area Class II	
		Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]
Alternative	WDR	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Early Project Development	--	0.049	3.45	0.004	3.40	0.016	3.42	0.007	3.41
Early Project Development and Regional Sources	--	0.333	3.73	0.035	3.43	0.085	3.49	0.050	3.45

		Grand Teton National Park Class I		Teton Wilderness Class I		Yellowstone National Park Class I		Washakie Wilderness Area Class I	
		Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]	Direct Modeled Impact	Total Concentration[1]
Alternative	WDR	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Early Project Development	--	0.003	3.40	0.001	3.40	0.001	3.40	0.001	3.40
Early Project Development and Regional Sources	--	0.045	3.44	0.016	3.42	0.010	3.41	0.017	3.42

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 100 $\mu g/m^3$ on an annual basis.

Table E.10.2 - Summary of Maximum Modeled SO_2 Concentration ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources

		Bridger Wilderness Class I						Fitzpatrick Wilderness Class I						Popo Agie Wilderness Class II						Wind River Roadless Area Class II					
		Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]		
Alternative	WDR	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
Early Project Development	–	0.224	0.064	0.004	132.2	43.1	9.0	0.066	0.015	0.001	132.1	43.0	9.0	0.082	0.018	0.002	132.1	43.0	9.0	0.048	0.015	0.001	132.0	43.0	9.0
Early Project Development and Regional Sources	–	0.847	**0.210**	0.014	132.8	43.2	9.0	0.249	0.064	0.001	132.2	43.1	9.0	0.204	0.048	0.002	132.2	43.0	9.0	0.230	0.056	0.002	132.2	43.1	9.0

		Grand Teton National Park Class I						Teton Wilderness Class I						Yellowstone National Park Class I						Washakie Wilderness Area Class I					
		Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]			Direct Modeled Impact			Total Concentration[1]		
Alternative	WDR	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual
Early Project Development	–	0.037	0.011	0.000	132.0	43.0	9.0	0.019	0.007	0.000	132.0	43.0	9.0	0.015	0.006	0.000	132.0	43.0	9.0	0.018	0.005	0.000	132.0	43.0	9.0
Early Project Development and Regional Sources	–	0.354	0.093	0.008	132.4	43.1	9.0	0.093	0.029	0.003	132.1	43.0	9.0	0.096	0.025	0.002	132.1	43.0	9.0	0.076	0.019	0.001	132.1	43.0	9.0

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 1,300 $\mu g/m^3$ on a 3-hour basis, 365/260 $\mu g/m^3$ on a 24-hour basis and 80/60 $\mu g/m^3$ on an annual basis.

Table E.10.3 - Summary of Maximum Modeled PM_{10} Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources

		Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Early Project Development	–	0.956	0.047	34.0	16.0	0.269	0.010	33.3	16.0	0.318	0.022	33.3	16.0	0.302	0.013	33.3	16.0
Early Project Development and Regional Sources	–	2.560	0.171	35.6	16.2	0.968	0.044	34.0	16.0	0.976	0.073	34.0	16.1	0.988	0.053	34.0	16.1

		Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Early Project Development	–	0.303	0.007	33.3	16.0	0.255	0.004	33.3	16.0	0.208	0.003	33.2	16.0	0.152	0.004	33.2	16.0
Early Project Development and Regional Sources	–	0.792	0.039	33.8	16.0	0.385	0.024	33.4	16.0	0.339	0.015	33.3	16.0	0.533	0.020	33.5	16.0

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS whaich are 150 $\mu g/m^3$ on a 24-hour basis and 50 $\mu g/m^3$ on an annual basis.

Table E.10.4 - Summary of Maximum Modeled $PM_{2.5}$ Concentration Impacts ($\mu g/m^3$) at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources

		Bridger Wilderness Class I				Fitzpatrick Wilderness Class I				Popo Agie Wilderness Class II				Wind River Roadless Area Class II			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Early Project Development	–	0.956	0.047	14.0	5.1	0.269	0.010	13.3	5.0	0.318	0.022	13.3	5.0	0.302	0.013	13.3	5.0
Early Project Development and Regional Sources	–	2.550	0.173	15.5	5.2	0.962	0.045	14.0	5.1	0.972	0.076	14.0	5.1	0.983	0.054	14.0	5.1

		Grand Teton National Park Class I				Teton Wilderness Class I				Yellowstone National Park Class I				Washakie Wilderness Area Class I			
		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]		Direct Modeled Impact		Total Concentration[1]	
Alternative	WDR	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Early Project Development	–	0.213	0.006	13.2	5.0	0.145	0.004	13.1	5.0	0.120	0.003	13.1	5.0	0.152	0.004	13.2	5.0
Early Project Development and Regional Sources	–	0.788	0.039	13.8	5.0	0.384	0.024	13.4	5.0	0.338	0.015	13.3	5.0	0.534	0.021	13.5	5.0

[1] Total concentration includes direct modeled impact and background concentration for comparison to NAAQS/WAAQS which are 65 $\mu g/m^3$ on a 24-hour basis and 15 $\mu g/m^3$ on an annual basis.

Table E.10.5 - Summary of Maximum Modeled In-field Pollutant Concentrations ($\mu g/m^3$) from Early Project Development Stage and Regional Sources Within the JIDPA Compared to NAAQS/WAAQS

		NO_2			SO_2									PM_{10}						$PM_{2.5}$					
		Direct Modeled Impact	Total Concentration[1]	NAAQS/ WAAQS	Direct Modeled Impact			Total Concentration[1]			NAAQS/WAAQS			Direct Modeled Impact		Total Concentration[1]		NAAQS/WAAQS		Direct Modeled Impact		Total Concentration[1]		NAAQS/WAAQS	
Alternative	WDR	Annual	Annual	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	3-hr	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual	24-hr	Annual
Early Project Development	–	18.8	22.2	100	30.5	9.7	1.2	162.5	52.7	10.2	1,300	365/260	80/60	82.6	12.9	115.6	28.9	150	50	36.2	6.2	49.2	11.2	65	15
Early Project Development and Regional Sources	–	27.1	30.5	100	37.7	12.1	1.7	169.7	55.1	10.7	1,300	365/260	80/60	89.0	15.0	122.0	31.0	150	50	49.4	8.2	62.4	13.2	65	15

[1] Total concentration includes direct modeled impact and background concentration.

Table E.10.6 - Summary of Maximum Modeled Nitrogen (N) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive Class II Areas from Early Project Development Stage and Regional Sources[1]

Alternative	WDR	Bridger Wilderness Class I	Fitzpatrick Wilderness Class I	Popo Agie Wilderness Class II	Wind River Roadless Area Class II
Early Project Development	--	0.0134	0.0031	0.0093	0.0048
Early Project Development and Regional Sources	--	0.0961	0.0249	0.0491	0.0327
Total Impact[2]	--	1.5961	1.5249	1.5491	1.5327

Alternative	WDR	Grand Teton National Park Class I	Teton Wilderness Class I	Yellowstone National Park Class I	Washakie Wilderness Area Class I
Early Project Development	--	0.0019	0.0011	0.0007	0.0013
Early Project Development and Regional Sources	--	0.0202	0.0113	0.0076	0.0120
Total Impact[2]	--	1.5202	1.5113	1.5076	1.5120

1 Nitrogen deposition analysis threshold for direct Project impacts = 0.005 kg/ha-yr, level of concern for total impacts is 3.00 kg/ha-yr.

2 Total impact includes N deposition value of 1.5 kg/ha-yr measured near Pinedale for the year 2001.

Table E.10.7 - Summary of Maximum Modeled Sulfur (S) Deposition Impacts (kg/ha-yr) at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources[1]

Alternative	WDR	Bridger Wilderness Class I	Fitzpatrick Wilderness Class I	Popo Agie Wilderness Class II	Wind River Roadless Area Class II
Early Project Development	--	0.00176	0.00051	0.00135	0.00077
Early Project Development and Regional Sources	--	0.0062	0.0010	0.0012	0.0010
Total Impact[2]	--	0.7562	0.7510	0.7512	0.7510

Alternative	WDR	Grand Teton National Park Class I	Teton Wilderness Class I	Yellowstone National Park Class I	Washakie Wilderness Area Class I
Early Project Development	--	0.00030	0.00018	0.00011	0.00020
Early Project Development and Regional Sources	--	0.0048	0.0023	0.0015	0.0009
Total Impact[2]	--	0.7548	0.7523	0.7515	0.7509

1 Sulfur deposition analysis threshold for direct Project impacts = 0.005 kg/ha-yr, level of concern for total impacts is 5.00 kg/ha-yr.

2 Total impact includes S deposition value of 0.75 kg/ha-yr measured near Pinedale for the year 2001.

Table E.10.8 - Summary of Maximum Modeled Change in ANC (μeq/L) at Acid Sensitive Lakes from Early Project Development Stage and Regional Sources

		Black Joe Lake Bridger Wilderness Class I		Deep Lake Bridger Wilderness Class I		Hobbs Lake Bridger Wilderness Class I		Lazy Boy Lake Bridger Wilderness Class I	
Alternative	WDR	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)
Level of Acceptable Change (meq/L)	--	6.70	--	5.99	--	6.99	--	1.00	--
Background	--	67.0	--	59.9	--	69.9	--	18.8	--
Early Project Development	--	0.064	0.10%	0.068	0.11%	0.040	0.06%	0.021	0.11%
Early Project Development and Regional Sources	--	0.350	0.52%	0.371	0.62%	0.278	0.40%	0.141	0.75%

		Upper Frozen Lake Bridger Wilderness Class I		Lower Saddlebag Popo Agie Wilderness Class II		Ross Lake Fitzpatrick Wilderness Class I	
Alternative	WDR	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)	ANC Change (μeq/L)	Percent ANC Change (%)
Level of Acceptable Change (meq/L)	--	1.00	--	5.55	--	5.35	--
Background	--	5.0	--	55.5	--	53.5	--
Early Project Development	--	0.073	1.45%	0.079	0.14%	0.019	0.04%
Early Project Development and Regional Sources	--	0.398	7.96%	0.394	0.71%	0.136	0.26%

Table E.10.9 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources Using FLAG Background Data - MVISBK = 6

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	--	2.19	28	8	0.86	4	0	0.95	6	0	0.91	2	0
Early Project Development and Regional Sources	--	6.04	124	61	3.06	25	11	3.04	50	20	3.08	32	12

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	--	0.66	1	0	0.36	0	0	0.32	0	0	0.42	0	0
Early Project Development and Regional Sources	--	2.60	24	8	1.31	15	4	1.21	6	3	1.66	9	2

Note: Δdv = change in deciview.

Table E.10.10 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources Using IMPROVE Background Data - MVISBK = 6

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	--	2.42	34	9	0.95	5	0	1.06	10	2	1.01	3	1
Early Project Development and Regional Sources	--	6.57	128	59	3.37	27	11	3.35	51	23	3.39	31	15

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	--	0.67	1	0	0.37	0	0	0.32	0	0	0.43	0	0
Early Project Development and Regional Sources	--	2.63	20	8	1.33	12	4	1.23	5	3	1.70	10	2

Note: Δdv = change in deciview.

Table E.10.11 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources Using FLAG Background Data - MVISBK = 2

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	–	5.92	46	22	2.40	9	3	1.46	21	1	1.16	3	2
Early Project Development and Regional Sources	–	13.51	147	94	8.12	53	26	4.98	93	50	6.39	33	17

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	–	1.59	8	2	1.18	5	1	1.04	2	1	0.81	2	0
Early Project Development and Regional Sources	–	4.46	52	31	3.94	44	28	3.54	33	16	3.79	23	13

Note: Δdv = change in deciview.

Table E.10.12 - Summary of Maximum Modeled Visibility Impacts at PSD Class I and Sensitive PSD Class II Areas from Early Project Development Stage and Regional Sources Using IMPROVE Background Data - MVISBK = 2

		Bridger Wilderness Class I			Fitzpatrick Wilderness Class I			Popo Agie Wilderness Class II			Wind River Roadless Area Class II		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	–	5.95	47	21	2.42	8	4	1.08	18	1	1.11	3	1
Early Project Development and Regional Sources	–	13.56	143	95	8.15	52	19	3.67	89	49	3.83	32	17

		Grand Teton National Park Class I			Teton Wilderness Class I			Yellowstone National Park Class I			Washakie Wilderness Area Class I		
Alternative		Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)	Maximum Visibility Impact (Δdv)	Number of Days > 0.5 Δdv (days)	Number of Days > 1.0 Δdv (days)
Early Project Development	–	1.32	5	1	0.97	3	0	0.85	2	0	0.80	2	0
Early Project Development and Regional Sources	–	3.76	46	26	3.32	36	20	2.98	29	11	3.02	20	10

Note: Δdv = change in deciview.

Table E.10.13 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Early Project Development Stage and Regional Sources Using FLAG Background Data - MVISBK = 6

	Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	5.91	24	3.33	21	3.06	13	1.56	4	1.96	9
Early Project Development and Regional Sources	13.31	85	7.60	107	9.83	131	8.92	63	9.25	71

	Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	2.65	13	4.74	31	5.11	10	2.15	6	2.67	12
Early Project Development and Regional Sources	11.88	88	9.89	77	10.14	37	5.58	33	9.38	107

[1] Δdv = change in deciview.

Table E.10.14 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Early Project Development Stage and Regional Sources Using IMPROVE Background Data - MVISBK = 6

	Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	6.62	24	3.66	24	3.37	18	1.79	8	2.17	11
Early Project Development and Regional Sources	14.43	79	8.42	108	10.59	130	9.60	56	9.95	73

	Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	2.93	14	5.18	33	5.73	11	2.46	7	2.94	14
Early Project Development and Regional Sources	12.68	86	10.85	77	11.12	39	6.25	33	10.32	113

[1] Δdv = change in deciview.

Table E.10.15 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Early Project Development Stage and Regional Sources Using FLAG Background Data - MVISBK = 2

	Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	8.34	44	7.64	27	7.70	18	2.66	16	3.22	16
Early Project Development and Regional Sources	17.65	110	15.89	91	19.09	126	13.04	73	15.34	74

	Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	4.26	20	7.44	47	7.67	24	3.24	11	4.87	21
Early Project Development and Regional Sources	17.51	96	13.46	95	14.23	67	10.88	46	17.91	115

[1] Δdv = change in deciview.

Table E.10.16 - Summary of Maximum Modeled Visibility Impacts at Wyoming Regional Community Locations from Early Project Development Stage and Regional Sources Using IMPROVE Background Data - MVISBK = 2

	Big Piney		Big Sandy		Boulder		Bronx		Cora	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	8.61	34	7.67	29	7.74	20	2.66	16	3.39	20
Early Project Development and Regional Sources	18.55	105	15.94	98	19.14	123	13.08	65	15.39	71

	Daniel		Farson		Labarge		Merna		Pinedale	
Alternative	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)	Maximum Visibility Impact (Δdv)[1]	Number of Days > 1.0 Δdv[1] (days)
Early Project Development	4.48	21	7.64	46	8.27	17	3.24	11	4.90	22
Early Project Development and Regional Sources	17.56	89	14.12	91	15.06	53	10.93	41	17.96	113

1 Δdv = change in deciview.

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